

ROTUNDA

SUMMER 1981 VOLUME 14 NUMBER 2 \$2.00

Squirrels in Garden

A Great Flemish Miniaturist

Preserving the Past

The Tall Cap



A faint, light-grey watermark of the Royal Ontario Museum's neoclassical building is centered behind the text. It features four tall columns supporting a triangular pediment.

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ROTUNDA

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Volume 14, Number 2, Summer 1981

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Cover photo: Detail from Joris Hoefnagel's view of Soest, p. 13.
(Photo William Robertson, Photography Department, ROM)

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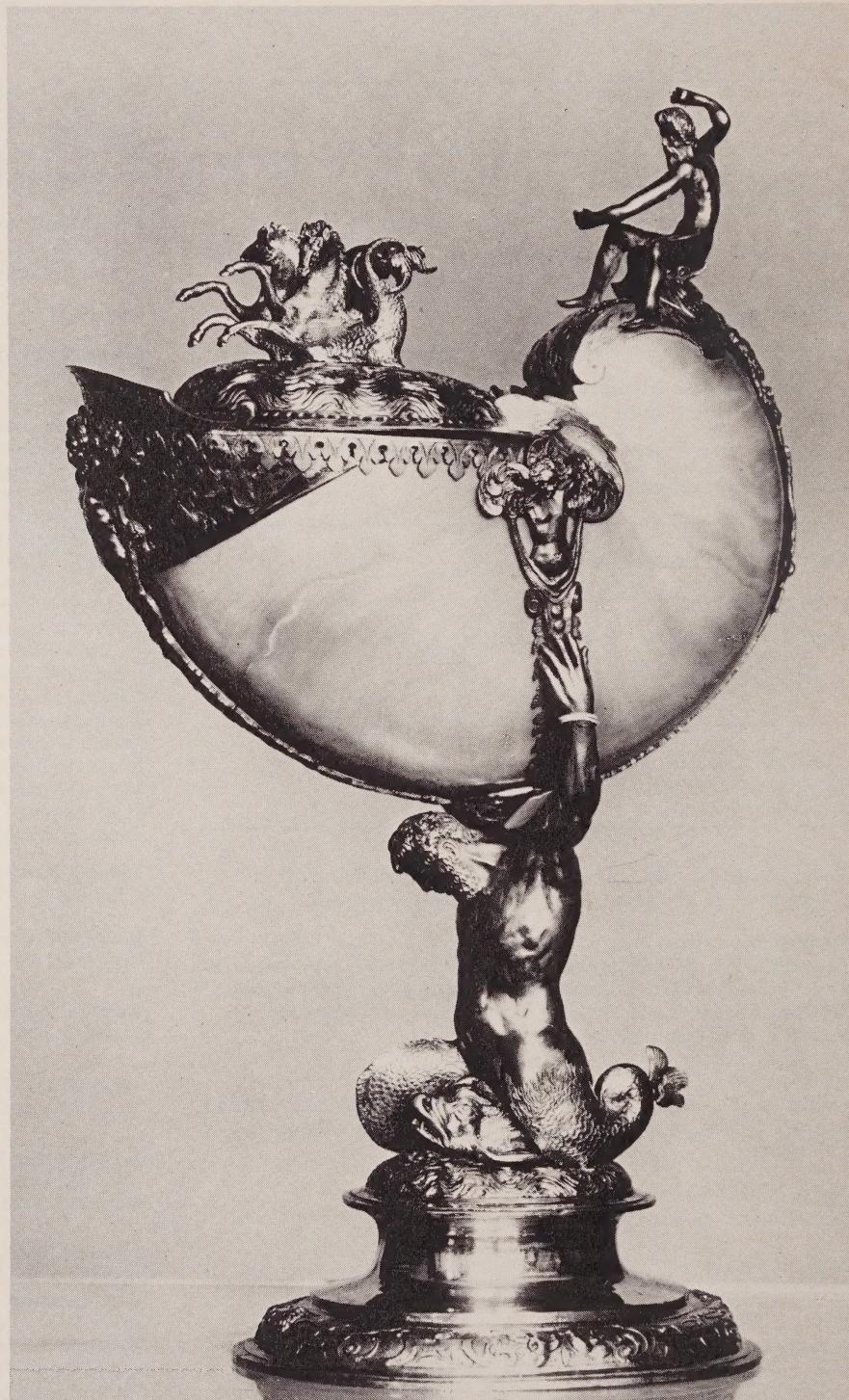
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Focus on . . .

The Pearly Nautilus

Desmond Collins



Sixteenth-century nautilus shell cup mounted in silver gilt, made in Augsburg, Germany. Height: 33 cm.

ONE OF THE STRANGEST and most remarkable sea creatures of all time is swimming around an aquarium at the Royal Ontario Museum. Unlike its fleet cousin, the squid, or its other rubbery relative, the octopus, the Pearly Nautilus has an external shell which gives it both protection and neutral buoyancy in the sea. Swimming slowly, or hanging motionless in mid-water, the Pearly Nautilus looks like a beautiful zebra-striped balloon with a white-speckled brown cap on one side covering two large eyes with vertical slits, a wonderfully flexible hollow tube which directs the animal's water-jet propulsion, and a fantastic array of tentacles.

The Pearly Nautilus has always inspired man. This is in sharp contrast to the other storied cephalopod molluscs, the giant squid and the giant octopus ("the devil fish" of Victor Hugo), which are the source of lurid tales of sea monsters. The beautiful shell of the nautilus has been known to Europeans for thousands of years, at least since classical times. Aristotle probably named it. Alexander Pope and Oliver Wendell Holmes wrote poetry about it; the mathematician d'Arcy Thompson used its shell as the centre-piece for his famous book *On Growth and Form* because its shape follows a perfect logarithmic spiral. This perfect spiral shape, a mother-of-pearl composition, and an exotic source (the Philippines) made the nautilus shell a favourite of 16th-century European silversmiths, who used it for ornamental nautilus shell cups or as the hulls of ornamental sailing ships.

Even more than the nautilus has inspired craftsmen and poets, however, it has inspired scientists. In the 17th century Robert Hooke, first experimentalist of the Royal Society, ascribed to the nautilus the ability to rise at will, by the generation of gas, or to sink by exhaling. The *Memoir on the Pearly Nautilus*, published in 1832, first brought Richard Owen to scientific prominence. He went on to become the foremost anatomist of the 19th century and tutor to Queen Victoria's children, before ruining his reputation in his attacks on Darwin and the theory of evolution. It is ironic that the nautilus should have begun Sir Richard Owen's career because later on it was thought to offer the best proof of a major late 19th-century spinoff from the theory of evolution—Ernst Haeckel's recapitulation.

The theory of recapitulation proposed that the development of the individual (ontogeny) repeated the main stages of the evolution of the ancestral group through geologic time (phylogeny). The best-known example today is the development of gills in the human embryo, supposedly repeating vertebrate evolution from fishes in the remote past. Towards the end of the 19th century the nautilus was thought

to be able to provide the best proof of recapitulation because its ancestors, the nautiloids and ammonoids, have one of the best-documented fossil records going back hundreds of millions of years. One needed only to determine the development, especially the embryology, of the nautilus to see if it repeated the known evolution of its ancestors. At the turn of the century a young biologist, Arthur Willey, spent three years in New Guinea and New Caledonia studying the development of the nautilus, but was ultimately unsuccessful in his quest because not one of the many fresh nautilus eggs he obtained developed. Willey gave up in disgust. He later became the head of zoology at McGill University. Since then recapitulation has fallen into disfavour. Moreover, the embryology of the nautilus is still unknown. It is a mystery why nautilus eggs never develop in a marine laboratory.

More than anything else, the nautilus has served as the inspiration for submarines. Since Robert Hooke's time almost 300 years ago, it has been assumed that the nautilus sinks by taking water into its shell and rises by blowing it out with gas. The analogy with submarines is obvious. As a consequence, many submarines have been named Nautilus. The two best-known ones are Jules Verne's wondrous *Nautilus* commanded by Captain Nemo in *Twenty Thousand Leagues under the Sea*, and the U.S. Navy's first atomic submarine, U.S.S. *Nautilus*, commissioned in 1954. This most famous of modern submarines travelled much more than 20 000 leagues under the sea, travelled faster submerged than on the surface, and was the first submarine to reach the North Pole. It continued its submerged voyage beneath the ice of the Arctic Ocean to complete the first submarine trip through the Northwest Passage from the Pacific to the Atlantic in 1958.

Despite the apparent analogy, however, the Pearly Nautilus does not function at all like a submarine. For instance, the neutral buoyancy provided by its shell allows the nautilus to rise easily above the bottom. In contrast, a submarine's buoyancy tanks are flooded with water so that it can sink below the surface. Also, the nautilus does not add or remove water in its shell in order to sink or rise. In contrast to a submarine, a healthy nautilus always remains totally submerged. Compared to the manoeuvrability of the nautilus, which is weightless in water and can move quickly up, down, or sideways by pointing its propulsion jet in the opposite direction, a submarine's ability to change direction and depth is sluggish and clumsy. Early nautiloids, such as the ones whose shells are found as 440 million-year-old fossils in the rocks around Toronto, were shaped like a submarine, and like a submarine had to keep their buoy-

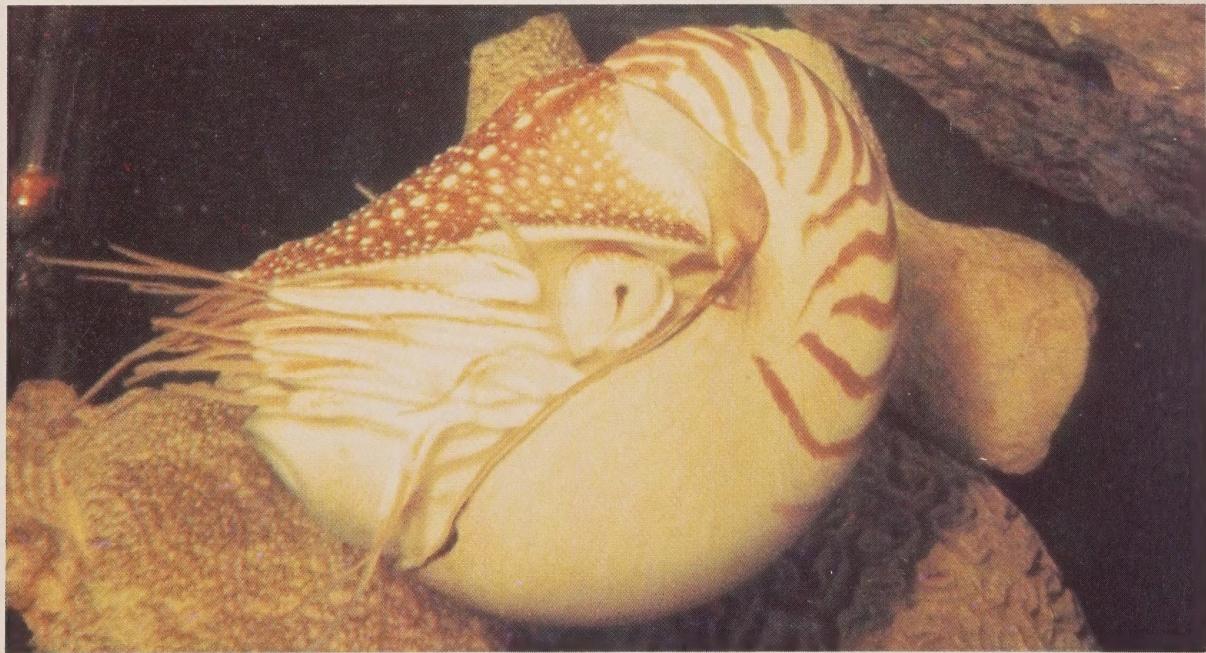
ancy chambers continually trimmed in order to stay horizontal. The nautilus, with its buoyancy chambers coiled above its body, has no such problem. In order to force water from its tanks, the submarine uses compressed gas. Unfortunately, the deeper the submarine dives, the greater the gas pressure needed and the smaller the volume of water it can displace. During growth, the nautilus also needs to extract water from its shell. However it uses a much more sophisticated system in which the ions present in water in the shell and in its tissues are manipulated to create an osmotic pressure which extracts the water from the shell. This system works even when acting against the great pressures encountered at depths of 700 m. The submarine's problem with compressed gas is thus avoided. Like a submarine hull, the nautilus shell is a perfect pressure vessel. Its vaulted arch construction uses a minimum of shell material and, with the partitions between chambers acting as reinforcing supports, allows it to withstand a pressure differential of seventy atmospheres between the inside and the outside of its buoyancy chambers. Finally, the nautilus has a fantastic array of ninety-four extensible tentacles, which, like the tools on a Swiss Army pocket knife, allow it to perform many specialized and general purpose tasks. It has tentacles which protect its eyes,

tentacles which feel the sea bottom when held in a cat's whisker pattern, tentacles which seek food when spread out in a "cone of search" array, tentacles which seize food, and others which hold it. It even has tentacles specially modified for mating. Compared to the nautilus, whose design has been perfected over 500 million years, the modern submarine is a primitive machine.

The male nautilus in the ROM, affectionately called Norbert by the staff, seems to have adjusted well to life in the aquarium. He exerts great fascination over staff members, so that they return again and again to see him. Live nautiluses have been kept in aquaria for a year or more, so it is hoped that Norbert, or another like him, will be on display when the Museum reopens. Then the museum visitor, like so many poets, craftsmen, mathematicians, and scientists since Aristotle, will come under the spell of this marvellous mollusc.

Dr. Collins is Curator in the Department of Invertebrate Palaeontology.

Photos: p. 2 Photography Department, ROM; p. 4 Brian Boyle, Photography Department, ROM. Thanks are due to Nikon Canada and the Sports Divers Inc. for loan of photographic equipment.



Norbert the nautilus in his aquarium at the ROM.

First Phase Complete . . .

ROM Fund-Raising Drive Continues



Mrs. Mona Campbell and Mr. John Devlin wearing "gold caps" presented by Mr. Sydney Hermant.

MR. SYDNEY HERMANT, Chairman of the ROM Board of Trustees, and Mrs. Hermant recently held a reception to honour Mrs. K. L. (Mona) Campbell, President of Dover Industries Limited, and Mr. John H. Devlin, Chairman of Rothmans of Pall Mall, Canada, Limited, for their achievements as co-chairmen of the fund-raising campaign. The occasion was the realization of the first phase of the Private Sector target—more than \$10.3 million for the ROM Renovation and Expansion Project to be matched by a Wintario grant pledged by the Ontario Ministry of Culture and Recreation in 1978. To mark the occasion, and in appreciation of their efforts, Mrs. Campbell and Mr. Devlin were presented with "gold caps". Throughout the campaign the co-chairmen have had the strong support of many volunteers.

- Mr. Richard M. Ivey, Chairman of Allpak Products Limited and Vice-Chairman of the ROM Board of Trustees, led the Foundations Sector campaign, together with Mr. John C. Barrow, Chairman of Simpsons-Sears Limited, and Mrs. John (Marian) Bradshaw, Editor-in-Chief of the Canadian Collector.
- Mr. John A. Rhind, President of Confederation Life, and Mr. James Thackray, President of Bell Canada, Montreal, led the Major Corporations Sector, assisted by Mr. Hugh Franks of Dominion Securities Limited.

- Mrs. Elizabeth Rhind, a member of the ROM Board of Trustees, was responsible for the Women's Special Names Sector, and Mr. Marsh Cooper, former President of Falconbridge Nickel Mines Limited, for the Men's Special Names Sector.
- Mrs. Joan Randall, Honorary Trustee of the ROM, chaired the Student Participation Programme, with Mrs. Joan Fitzpatrick, a member of the ROM Board of Trustees, in charge of school liaison, and Mrs. Joan Thompson of the Members' Volunteer Committee serving as publicity coordinator.
- Four former chairmen of the ROM Board of Trustees have acted as honorary chairmen of the campaign: Mr. Richard G. Meech, Mr. Noah Torno, the late Mr. Harold M. Turner, Sr., and Brigadier General Gordon D. deS. Wotherspoon. Mr. Donald Fullerton, Vice-Chairman and President of the Canadian Imperial Bank of Commerce, is the honorary treasurer of the campaign.

- Mr. Harold M. Turner, Jr., Chairman of MacLaren Advertising and a member of the ROM Board of Trustees, piloted the \$5 million appeal to the Metropolitan Toronto Council to its successful conclusion.

Having celebrated the achievement of the critically important target of \$10.3 million, the ROM continues its fund-raising drive, not only to meet the escalated costs of the new building, but also to develop galleries in the additional space created. Approximately 20 000 gross square metres of gallery space will be available in the expanded Museum, compared with 12 725 gross square metres in the old building. The first galleries in the new ROM—approximately 5600 square metres—are scheduled to open to the public in 1982. Over the next several years, as funds become available, the Museum plans to develop new galleries.

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The ROM Building Fund
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Right: Squirrels in Garden by Hua Yen.
Hanging scroll, ink on paper. ROM
collection.

Opposite page: Bamboo and Rock by Hua
Yen. Hanging scroll, ink on paper.
Collection unknown.

Squirrels in Garden

A Painting by Hua Yen

Ka Bo Tsang

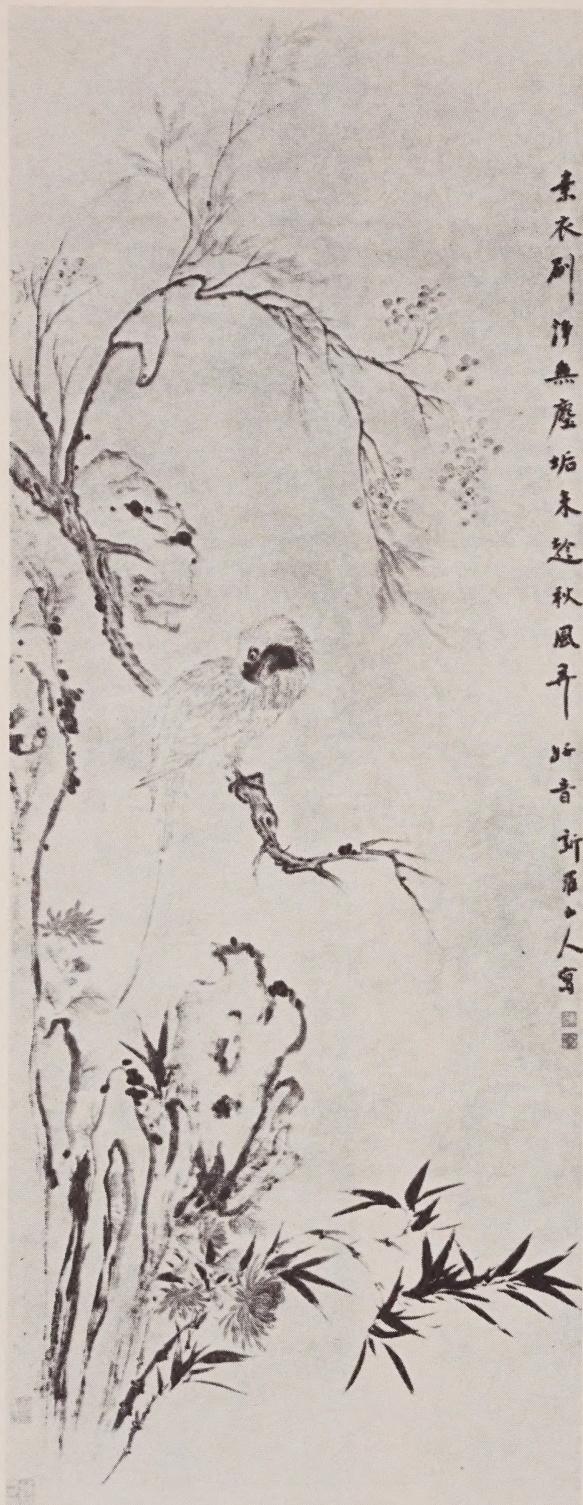
SOME TIME AGO through the generosity of the Bishop White Committee, the Far Eastern Department was able to acquire an 18th-century Chinese painting by Hua Yen (1682-1756), who was a representative figure among the artistic circles of Yang-chou. The hanging scroll, *Squirrels in Garden*, which depicts a simple but delightful scene of two playful squirrels in a garden, is a significant addition to the ROM's collection of Chinese paintings.

Hua Yen's life is not well documented. Most biographical sources give only the bare facts: he was a native of Lin-ting in Fukien; he migrated to the scenic city of Hang-chou in Chekiang, but spent a large part of his life in nearby Yang-chou in Kiangsu. Even recent studies and scattered information in Hua Yen's own collection of poems, *Li-kou chi*, shed only limited light on his life.

We know that Hua Yen came from a poor family and that his father was a paper maker. At an early age, in order to help his family, Hua became an apprentice in the same paper-manufacturing workshop. Some scholars believe that he later became a ceramic decorator in the famous kiln site Ching-te-chen in Kiangsi, but being a man of some aspirations he grew dissatisfied with the limited prospects there. Soon after he came of age, he started to travel. With high hopes, he visited Hang-chou, Yang-chou, Peking, the five Sacred Mountains (T'ai Shan in Shantung, Sung Shan in Honan, Hua Shan in Shensi, Heng Shan in Hopei, and Heng Shan in Hunan), and possibly went as far north as the frontier region, notably to T'ien Shan in the northwest and to Jehol in the northeast. However, he neither encountered adventure nor found the government post he sought. In 1729, disillusioned and disappointed, he settled in Hang-chou. All he wanted to do was lead a hermit's life, but even that simple wish was difficult to realize.

Saddled with the obligation to provide for his family, Hua was drawn by the prospect of finding a bigger market for his work in Yang-chou, the most active commercial and cultural centre of the time. For two decades, from the early 1730s to 1752, he crossed the Yangtze River frequently, shuttling between Hang-chou and Yang-chou. During his sojourns in Yang-chou he lived under the patronage of a friend named Yüan Kuo-t'ang, and worked as a painter and a calligrapher, and possibly as a writer of eulogies and epitaphs on commission.





Parrot on a Branch by Hua Yen. Hanging scroll, ink and colour on paper. Liao-ning Provincial Museum of Art, the People's Republic of China.

Hua Yen was a man of many talents, who was able to master and excel in what many consider the three highest forms of art: poetry, calligraphy, and painting. Most of his works are a combination of the three. His love of nature, which forms a recurring theme in his poetic work, provided him both a refuge and a source of inspiration. His favourite pastimes were long excursions into the countryside, with careful observations of the changing patterns of form and colour and the smells and sounds of nature. From this close contact with nature, he was able to capture in ink the life-breath of his subjects. Though a versatile painter, who worked with many subjects, he was especially esteemed for his consummate skill in depicting animals, insects, birds, and flowers.

Squirrels in Garden offers a good opportunity to savour Hua Yen's diverse repertoire. The poetic inscription, which appears in Hua's elegant running script in the upper left corner, reads:

As spring flowers blossom on slender branches,
Scattered shades embrace the winding slope.
Tender bamboo shoots sprout forth after a new
drizzle;
And squirrels frolic among the rocks and trees.

Inscribed by Hsin-lo shan-jen
at Luan-hsiang Studio

The three seals that follow are "Ch'iu-yüeh", "Hua Yen", and "Pu-i sheng"; the first and last, along with Hsin-lo shan-jen, are some of Hua Yen's many sobriquets. The rectangular seal beside the first character of the poem reads Yu-hsin ju-wei (A subtle mind penetrates the minutest secret), and the larger square seal in the lower right corner of the painting reads Chih-yin (A recluse on a branch). Both are condensed phrases, which the artist adopts to express his thought and feeling.

The poetic inscription on the painting, although undated, is recorded in *Li-kou chi*, in which all the dated poems are arranged in chronological order. Located between works composed in 1745 and works composed in 1746 and entitled "A Scene Outside the Window of My Mountain Abode", the poem was most likely composed in the spring of 1745. Unfortunately, Hua Yen's whereabouts in that year is unclear. However, although the location of the Luan-hsiang Studio is unknown, the "mountain abode" in the title of the poem strongly suggests Hang-chou, where Hua is known to have had a home, called Chieh-t'ao kuan, beside the scenic West Lake. In the preface to one of his poems, Hua Yen gives a brief description of the small garden he had northeast of that home. In it were two large rocks from Lake T'ai in southern Kiangsu, a clump of four or five stalks of square bamboo, and kumquat, oleander, peony, and rose bushes. The garden view represented in *Squirrels in Garden* is necessarily a selective one. The presence of a Lake T'ai rock and bamboo clumps, however, is reminiscent of some of the decorative components in the garden of Chieh-t'ao kuan and

makes us wonder whether Luan-hsiang Studio was part of Chieh-t'ao kuan.

Lake T'ai rock, which has long been regarded as an indispensable decorative element in a Chinese garden, has an interesting history, significance, and characteristics. The soft and porous limestone, which has to be removed from the bed of the lake by divers, is easily eroded by wind and water into odd formations. The most desirable features of the rock are a tortuous and rugged contour, and a surface with abundant perforations. Sometimes huge rocks are cut into smaller pieces whose artistry is enhanced by human hands and metal tools. After such treatment, the rocks are again submerged in the lake, where they remain long enough to acquire an aged appearance.

From ancient times Chinese scholars and aesthetes were fond of stones, in which they saw virtues such as integrity, steadfastness, and dependability. The creation of a miniature mountain in a garden goes back to early Six Dynasties (A.D. 220-589) or even as early as the Han Dynasty (206 B.C.-A.D. 220), although such artificial mountains were essentially heaps of stone. It was not until the T'ang Dynasty (A.D. 618-906) that rock-pile mountains were replaced with single monumental stones. By that time, garden rocks that were suggestive of microcosmic mountains had gained added overtones. For a gentleman, they symbolized nobility, patience, seclusion, and the virtuous contemplation of nature. In this light, Lake T'ai rock in particular became the most prized garden rock, and its popularity led to an excessive demand, which caused its near depletion by the 17th century. In Hua Yen's time, however, wealthy families and garden designers in Yang-chou still craved and sought this type of rock. In view of its rarity, Hua Yen must have been proud to own two specimens in his humble garden where he could relax and contemplate. His fondness for them is frequently reflected in his poems and paintings.

In *Squirrels in Garden* Hua Yen uses the Lake T'ai rock, half-seen jutting out of the right margin, as a point of reference for spatial recession. He places some undergrowth—a few blades of grass, bamboo shoots, and a clump of young leaves—in front of it to indicate the ground closer to the viewer, and another clump of bamboo leaves and some tree branches behind it to indicate the space that is farther away. As all these elements are arranged in a more or less vertical axis, their spatial relationship is rather ambiguous. This ambiguity is accentuated by the way the longer branch seems to bend forward under the pressure of a gust of wind and the weight of the squirrel. As a result, not only the spray of leaves and the flower at its tip, but also the squirrel hanging on the branch seem to be brought much closer to the viewer, creating a more direct and intimate feeling.

Hua Yen's predilection for off-balance composition and his disregard for spatial clarity can be observed in two other paintings of similar content,

Squirrel on a Chestnut Branch by Hua Yen. Hanging scroll, ink on paper. Collection unknown.



Bamboo and Rock and Parrot on a Branch. In *Bamboo and Rock* the weight of the composition is also on the right side, and although there are no squirrels, the same schematic arrangement of the compositional elements is generally repeated. In *Parrot on a Branch*, the basic elements also remain very much the same, except for the substitution of chrysanthemums for bamboo shoots and the parrot for the squirrels. The predominantly one-sided composition is strongly reminiscent of *Squirrels in Garden*. It appears, therefore, that in animal and bird-and-flower paintings, spatial clarity is something Hua Yen strives to avoid, or at least something he makes light of.

Hua Yen's familiarity with and skilful application of several compositional devices in order to create an effective design are well illustrated in *Squirrels in Garden*. The most striking feature is the use of the longer branch as a curve that extends across the painting surface diagonally and cuts it into two almost identical halves. This distinctive compartmentalization counterbalances the one-sided concentration of elements and stabilizes the whole painting. This feature is also shared by *Parrot on a Branch*. In two other squirrel paintings, *Squirrel on a Chestnut Branch* and *Squirrel and Mynas*, the same feature recurs, although without the added function of being a counterbalance. In all these



Left: Squirrel and Mynas by Hua Yen.
Hanging scroll, ink and slight colour on paper. Freer Gallery of Art, Smithsonian Institution, Washington, D.C.

Right: Hawk Chasing a Myna by Lin Liang.
Hanging scroll, ink and slight colour on silk.
Palace Museum collection, Taiwan.

paintings, at a point along the curving line, the subject is caught in some form of action: the squirrels in *Squirrel on a Chestnut Branch* and *Squirrel and Mynas* are about to leap; the one in *Squirrels in Garden* is dangling precariously on the branch; the parrot in *Parrot on a Branch* is preening its feathers. Although the creatures are frozen in their movements, their animated postures impart a lively atmosphere to the paintings.

The central placement of the squirrel and the parrot is another conventional device favoured by Hua Yen. By reserving the central spot in the painting for his subject, Hua ensures that it commands the full attention of the viewer. To further enhance the subject's importance, all secondary elements are designed to complement it. In *Squirrels in Garden*, the upward movement of the plants and the shape of the elongated rock guide the viewer's vision upward from the lower right corner to the tree branches. The downward movement of the upper squirrel, however, brings the viewer's attention back within the confines of the painting. Furthermore, by depicting the upper squirrel looking down intently on the one clinging to the branch below, Hua Yen invites the viewer to delight in the playful mood of the two little animals. With the almost perfect circle formed by the plants, part of the rock contour, and the C-shaped curve of the branch, the squirrel seems to be locked up in an imaginary enclosure. Its vulnerability adds a droll touch to the painting.

Compositional articulation is achieved by similar means in *Parrot on a Branch*. Although the parrot is the only bird in the composition, the upward movement of the spiky bamboo leaves and rocks, together

with the downward movement of the small twigs, again point to the subject of the painting. The C-shaped curve, formed by the twigs and the branch on which the parrot is perching, once more makes its appearance.

In *Squirrel and Mynas*, the same basic devices are employed with variation. The C-shaped curve formed by the branches is reversed. Two mynas are perched on the slender branches that form the upper arc. The left one is looking at the right one, which in turn eyes the squirrel. The squirrel is about to jump off the stronger branch that forms the lower arc, and is poised to chase two leaves. The imaginary zigzag line that the viewer follows unconsciously not only binds together the upper and lower halves of the painting, but also echoes the angular rock contour and the lacy pattern formed by the branches. Indeed, Hua Yen's adroit manipulation of imaginary and tangible lines adds to the richness we experience in his works.

Hua Yen uses the concept of compositional articulation again in *Squirrel on a Chestnut Branch*. This time, a completely enclosed oval configuration is achieved with the main branch and some creepers. The squirrel, depicted in a ready-to-leap posture, has its eyes set on the chestnut located directly opposite in the foreground. The tip of the branch, curving back to point at the chestnut, acts as an indicator to ensure that the significance of this fruit to the squirrel is not overlooked. The message is repeated in the poetic inscription:

The soothng west wind has turned the countryside into a yellowish tint.

Late in autumn, the frosted grove is laden with clusters of ripe chestnuts.
Delighted [the squirrel] jumps from branch to branch.
Who needs to ask [for the mercy of] the universe to satisfy one's hunger!

Written in running script in short columns that dance across the painting surface from left to right, this unconventional presentation is not only in keeping with the carefree spirit of the poem, but also harmonizes with the pictorial content.

The complete void we find in the background of all of Hua Yen's paintings serves to bring out the subjects in greater clarity. Although the technique is illogical in terms of perspective, Hua Yen likes to isolate and project his subject closer to the viewer in order to create a greater feeling of intimacy. The sentiment of expectation in these paintings is also characteristic. Whereas certain actions of the squirrels and birds are caught in a fleeting moment, the excitement does not end there. The viewer's imagination is stimulated to anticipate the next action.

In regard to brushwork, Hua Yen's paintings show a preoccupation with synthesizing two modes of representation. Hua devotes meticulous care to rendering the physical appearance of his subjects. The degree of realism seen in the two squirrels in *Squirrels in Garden* is astonishing in light of the fact that this approach was shunned by most of Hua's individualist contemporaries in Yang-chou. Yet having lavished close attention on the technical details of his subject, Hua seems content to give only a cursory description of supporting compositional elements. The crudely executed contour of the Lake T'ai rock and casual treatment given to its surface texture stand in sharp contrast to the refined depiction of the squirrels. The repeated play between wet wash and dry strokes, between broad sweeps and delicate lines, and between light and dark tonal gradations, shows Hua Yen's mastery of brush and ink. The spontaneity and nervous energy which Hua Yen invests in all the supporting compositional elements are counterbalanced by the sure and painstaking rendering of the little animals. Within this framework of diversity and contrast, the dominating resilient C-

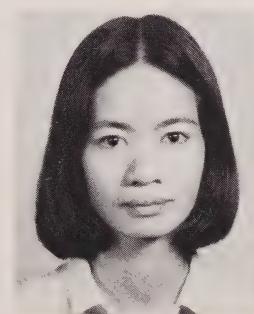
urve is designed to act as a unifying pictorial device. The swaying rhythm of the branch finds echoes all over the painting, notably in the bushy tails of the squirrels and the drooping slender grasses.

The repeated application of the concept of compositional articulation in Hua Yen's work demonstrates its effectiveness and diversity. A much earlier and well-known example bearing this remarkable feature is *Hawk Chasing a Myna* by Lin Liang, a painter who flourished at the court of the Ming emperor Ying-tsung from 1457 to 1464. In this 15th-century work, the two-part composition is also achieved by means of a diagonally bending tree branch. The attacking hawk is depicted in the upper segment, and its victim, the myna, is shown fleeing desperately in the lower segment. The myna's plight is emphasized by its being encircled by the C-shaped branch and the hanging creepers. This circular configuration is designed not only to draw the viewer's attention to the escaping bird, but also to suggest its inevitable fate. The painting is dominated by a forceful sense of dualism—the strong against the weak. The fear, tension, and violent motion stirred up by the powerful swooping descent of the hawk, the darting flight of the myna, and the swaying branches create a dramatic effect of great immediacy.

Lin Liang was a highly acclaimed master in bird-and-flower painting during the Ming Dynasty (1368–1644). To a certain extent, his influence was still felt in the Ch'ing Dynasty (1644–1911). Although he was not the originator of the concept of compositional articulation, he was at least one of its earlier transmitters. Hua Yen's repeated use of this device bears witness to his indebtedness to earlier works such as Lin Liang's *Hawk Chasing a Myna*. His fondness for it led him to experiment further to introduce variations within the traditional context.

Squirrels in Garden illustrates some of the interesting aspects of Hua Yen's mature style. It demonstrates his ability to draw upon stylistic traditions and revitalize them in his distinctive and fresh way. The well-integrated compositional elements testify to Hua's skill as an ingenious pictorial organizer. The witty sense of movement and life which he gives to his forms shows clearly why he is famed as the foremost animal painter of the Ch'ing Dynasty.

Photos: Photography Department, ROM; p. 10 (left) courtesy of the Freer Gallery of Art, Smithsonian Institution, Washington, D.C.; p. 10 (right) National Palace Museum, Taipei, Taiwan, Republic of China.



Ka Bo Tsang is Curatorial Assistant in the Far Eastern Department. Before joining the ROM in 1977, she studied at the University of Hong Kong, receiving her B.A. (Honours) in Chinese Literature and Art History in 1969, and M.A. in Chinese Painting in 1971. She then worked on a special research project at the university's Centre of Asian Studies. Her major interests include Chinese painting and calligraphy.

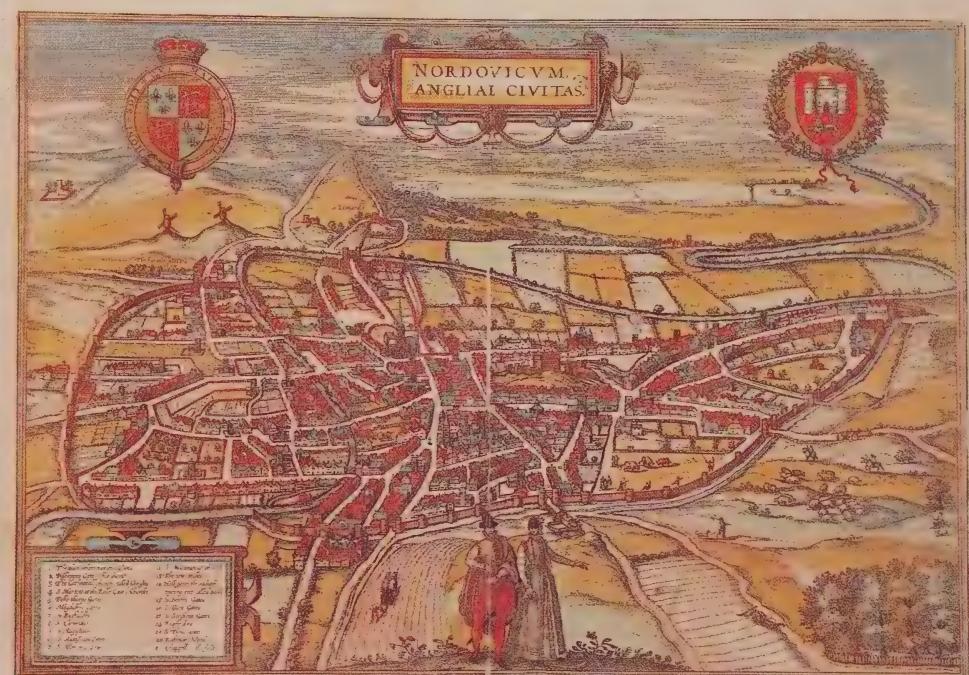


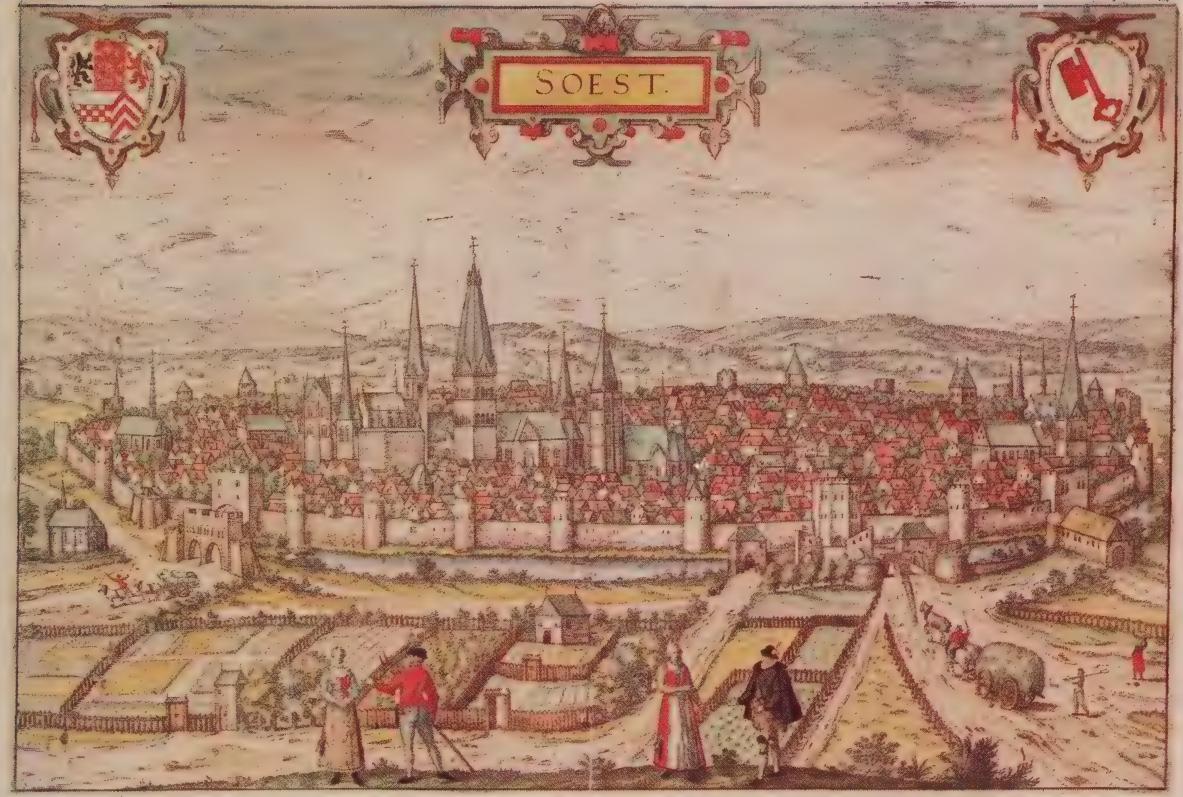
BRUGÆ, vulgo Brugk,
Totonica Flandrie urbs om-
nime pulcherrima, nitidissima,
publicarum sumulca, priscarum
adim in hac urbe splendor
et magnificentia, ornata
ratione, omne dicendi facultas
superat. Optimam viruum
formam, hoc est, orbiculari
sunt obirent, aquae prope in-
strata, duplci fossa ambiens,
floritissimum quondam
emporium fuit.

Above: Joris
Hoefnagel's view
of Bruges.
(927.93.1; plate size
46.3 cm × 31.4 cm)

Opposite page:
Joris Hoefnagel's
view of Soest.
(927.93.8;
plate size
48.5 cm × 32.2 cm)

Right: Joris
Hoefnagel's plan of
Norwich. (927.93.9;
plate size
42.5 cm × 29.4 cm)





A Great Flemish Miniaturist

The ROM Collection of Views by Joris Hoefnagel

Ladislav Cselenyi

FIFTY-FOUR YEARS AGO, in April 1927, the Royal Ontario Museum acquired a set of twenty-four coloured engravings of views of various European cities and landscapes, drawn by Joris (George) Hoefnagel (1542–1600) in the second half of the 16th century. In 1971 a display in the ROM of eighteen of these prints gave visitors a rare opportunity to become acquainted with this versatile artist. The ROM prints, however, represent only one aspect, though an important one, of the work of a very individual artist.



Joris Hoefnagel's *A Horselydown Wedding*, known also as *A Marriage Feast at Bermondsey and Horselydown Fair*. (*Possession of the Marquis of Salisbury, Hatfield*. Oil on canvas, 78.8 cm × 73.7 cm)

Joris Hoefnagel was born in Antwerp. His father, a wealthy dealer in precious stones, came from an old Brabant family, and his mother from the family of the goldsmith Vezelaer, who numbered among his clients Francis I of France. Joris, one of twelve children, showed remarkable artistic talent, and so his studies were directed more towards the arts and the humanities than towards commerce. For a time he was a pupil of Hans Bol (1534–93), a miniaturist and painter known for his small landscapes and flower paintings.

The young Hoefnagel travelled all over the continent. He went to France in 1561 and then to Spain, where he lived until 1567, mainly in Granada and Seville. He is known to have visited England in 1568–69, where, among other things, he made a set of twenty-five drawings to accompany his own verses in Flemish, French, and Spanish. This little volume, entitled *Traité de la patience par emblèmes* and now in the Library of Rouen, is essentially an illuminated manuscript, reflecting Hoefnagel's compassion for his tormented country and its people. Hoefnagel dedicated the book to his friend Jan Radermacher, who was also a friend of Lucas de

Heere (1534–84), with whom Hoefnagel has been compared, both as an artist and as a poet.

In 1570 Hoefnagel returned to Antwerp, where he was married the following year. Franz Purbus the Elder (1545–81), a friend and a painter in Bruges, recorded the event in an oil painting, *The Wedding Feast of Joris Hoefnagel*, which is now in the Musées Royaux des Beaux-Arts de Belgique, Brussels.

When the Hoefnagel family lost their wealth during the sack of Antwerp in 1576, Joris was befriended by the historian Emmanuel van Meteren (1535–1612), and by Abraham Ortelius (1527–98), a publisher of maps and one of the founders of modern cartography. Hoefnagel decided to travel with Ortelius and devote himself to painting as a livelihood. Furnished with a letter of introduction by a member of the Fugger family (the greatest bankers of the time), the two men visited Albrecht V, Duke of Bavaria, in Munich. The Duke took Hoefnagel into his service as court painter, first allowing him to complete his travels with Ortelius.

In 1578 Hoefnagel visited Rome to study the work of Giulio Clovio (1498–1578), the last significant representative of Italian miniature painting, who had died shortly before Hoefnagel's arrival. Cardinal Farnese, who had been Clovio's employer, wanted Hoefnagel to stay in Rome, but he returned to Munich to serve Albrecht, and his successor, William V.

Later Hoefnagel found employment in Innsbruck with Ferdinand, Archduke of Tyrol, for whom, between 1582 and 1590, he executed the most famous of his miniature productions, the *Missale Romanum*, which he embellished with five hundred miniatures and one hundred marginal drawings. It is now in the

Österreichische Nationalbibliothek, Vienna.

Emperor Rudolph II, much impressed by the missal, engaged Hoefnagel to paint miniatures representing all of animate nature, from quadrupeds to fishes. After that, Hoefnagel added magnificent miniatures to a book belonging to the Emperor, *Bocskay's Book of Calligraphy Patterns*, which is now in the Kunsthistorisches Museum in Vienna. The Emperor's generous reward enabled Hoefnagel to buy a property in Vienna, where he settled.

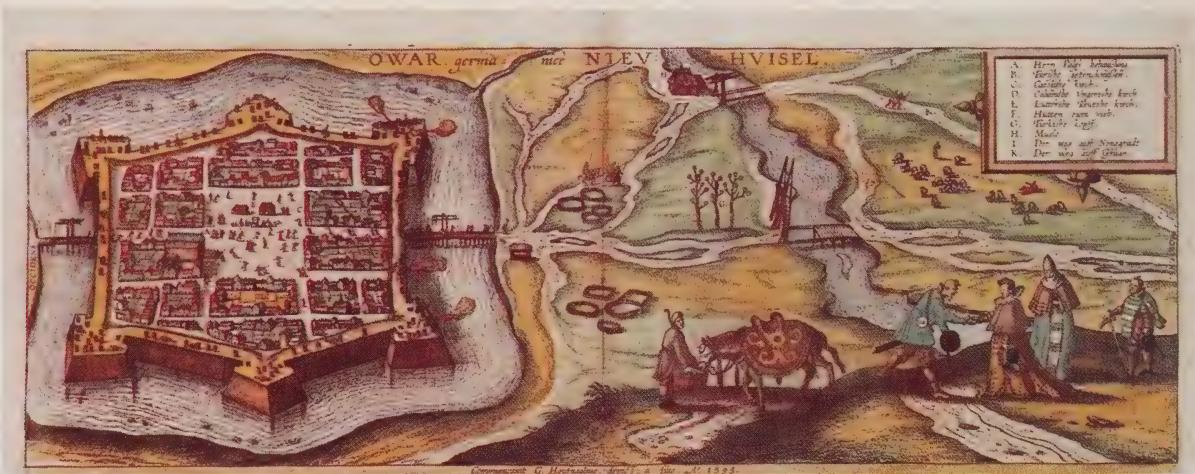
From the very beginning Hoefnagel's artistic inspiration came from nature; his favourite motto was *Natura sola magistra* (Nature is the only teacher). His acute power of observation is reflected in his sketches, which were always very small. Great artistic skill, combined with keen observation, enabled Hoefnagel to create an outstanding original style, which is most evident in the work for which he is most famous, rich illumination and miniature.

The prints in the ROM collection show the subject of Hoefnagel's first artistic interests. This activity is important, since it places Hoefnagel historically among artists who cooperated with one of the founders of modern cartography, Abraham Ortelius. Even before he went travelling with Ortelius, Hoefnagel had given sketches and drawings of landscapes, nature monuments, and cities to Canon George Braun, a German geographer, who with Franz Hogenberg (1540–90), a painter, engraver, and editor, published them in the first volume of their plans and views of towns, *Civitates Orbis Terrarum* (Cologne, 1572).

Works depicting the countryside and its geographic and topographic features were very popular at that time, and Hoefnagel had not only a particular



Joris Hoefnagel's view of Vienna. (927.93.12; plate size 48.3 cm × 16.2 cm)



Top: Joris Hoefnagel's Schlosberg, a mountain pass in the Tyrolean Alps. (927.93.10; plate size 51 cm × 21.3 cm)

Bottom: Joris Hoefnagel's view of Owar. (927.93.13; plate size 45.5 cm × 17 cm)

interest in them but also a fine ability to depict them. His bird's-eye view of Bristol was published in the third volume of *Civitates* in 1581. His views of Oxford and Windsor Castle, probably drawn during his visit to England in 1568–69, were engraved; the precious sheet of original pen drawings is in the Royal Library at Windsor Castle.

Although it is doubtful that all the views of English cities in the *Civitates* are by Hoefnagel, his artistic achievement during his visit to England was remarkable. In his well-known oil painting *A Horselydown Wedding*, which depicts a wedding celebration in Bermondsey and was probably executed in 1569, the influence of Bol is evident. The painting reveals not only Hoefnagel's acute observation of topographical details, but also his sensitive artistry, which George Braun was convinced was not the result of a master's training but a rare natural gift.

In *A Horselydown Wedding* all the topographical features are true—the scene is set in Bermondsey, on the grounds of St. Olave's Parish, Southwark, afterwards known as the Artillery Ground, where St. John's Church, Horselydown, now stands—but at the same time all the details harmonize. The composition is very pleasant, with figures charmingly set in pairs (this was a characteristic of Hoefnagel's sketches of towns).

Although the prints from the ROM collection illustrated here are only cuttings or extracted leaves, possibly from the 1598 edition of *Civitates* in which the engravings were hand-coloured, they are representative of the artistic quality of Hoefnagel's topographical drawings. Moreover, they give an idea of the variety of views originally drawn by the artist. The choice is not accidental: the six views of features of six different countries provide clear evidence of the unlimited scale of the artist's interests and of his great artistic skill.

The view of Bruges is more a plan than a bird's-eye view, but whatever the distance and the angle from which the artist did the sketch, his message is clear to the viewer. It would be pleasant to move about this city, whose structure evokes a busy but merry life within the squares and streets laid out in a network of bizarre order and bordered with a fortification system, which is more like the rim of a coloured gem than an architectural device for the city's defence. The picture is so convincing that one feels one could walk among the picturesque houses in the clean, sunny streets, and meet people like the couple climbing the hill to look down on their beautiful Bruges, "the jewel of Flemish cities", according to the title of the sketch.

The plan of Norwich is more a bird's-eye view, enriched with the life the artist observed, both within and without the walls, and with enough details to do honour to a modern reporter. As well as the two people on the hill, who exemplify contemporary fashion, there is a farmer ploughing a field in the shadow of an orchard—two details that vividly

represent the agricultural activities of the period. Shepherds with their flock—seated, with a dog, and even mounted—add to the scene. Behind the walls, on what was probably public ground between the gates of St. Stephen and St. Gues, six archers are exercising near some grazing cattle. A cartouche at the top of the print, bearing the title and flanked by two coats of arms, and another in the bottom left corner, bearing the legend, complete the message.

Soest, "one of the most beautiful and richest cities of Westphalia" according to the text on the back of the print, is a panoramic representation from a very low angle. Here the artist discloses the history of Soest, with all its characteristics of medieval urban development, but at the same time makes us aware of the people living in the city. Some of them, who have farms outside the walls, are busy driving wagons of hay to the haylofts in the backyards of their houses. A carter guides his vehicle, laden with cargo, out of the city. The spotless order of the gardens suggests a certain fussiness on the part of the owners, perhaps represented by the two couples conversing in the foreground. Like those in the views of Bruges and Norwich, the figures in this composition are reminiscent of the people in *A Horselydown Wedding*, in that the artist has caught all the details of fashion. The contemporary clothing of the peasants of Soest, as well as of the burghers, is clearly depicted. As is usual in charts and city views of the period, a single cartouche, flanked by two coats of arms, bears the name of the city.

The view of Vienna, as well as giving us a picture of the city, discloses the manner and means of 16th-century travel, and is perhaps a reflection of the artist's own experience on his frequent journeys. The carriage, however, pulled by a team of four horses, must have been in the possession of a wealthy owner. The mounted warrior in front of the carriage is probably the guard, protecting the travellers from highwaymen.

"A lovely view of the Innsbruck Valley with the cave of the Emperor Maximilian I in a mountain of falling rocks" is the translation of the Latin inscription at the top of the hand-coloured print of the Innsbruck Valley. The actual title of the work appears, in both Latin and German, in the lower margin; the translation is "Schlosberg, a mountain pass in the Tyrolean Alps". The same line contains two other Latin inscriptions: the first is *Depingebat Geor. Houfnaglius* (painted by George Hoefnagel); the translation of the second is "Memorial of the meeting place of the Emperor Charles V with his brother Ferdinand".

We can assume that Hoefnagel drew this sketch while he was employed by the Archduke of Tyrol, perhaps in 1582 when he first visited Innsbruck. There was a legend that Maximilian I, the Archduke's grandfather, had, as a youth, been miraculously rescued from a cave in which he had taken refuge while hunting chamois in the valley. Once

again the sketch reveals Hoefnagel's acute eye for detail, and the colours add significantly to the charm of the picture. The size of the chamois is somewhat exaggerated, perhaps suggesting that Hoefnagel was in a humorous mood as he represented the plot of the legend.

Among Hoefnagel's last journeys was a visit to Hungary in 1594. The bird's-eye view of Owar, a town in Upper Hungary (now Nové Zámky in the territory of Slovakia), is associated with this visit. Both Owar and the German name of the town, Nieu Huisel, appear at the top of the print. The picture is in fact a fascinating report from the frontier of Hungary at a time when the character of Owar had completely changed. The town had been converted into a strong Renaissance fortification—in a chain of other fortified towns on the frontier of Upper Hungary—to protect it against the Turks, who had been in possession of Lower Hungary since 1526.

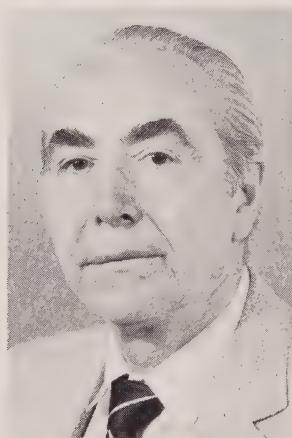
The fortification is minutely drawn and shows in detail the position of the artillery. The town square is crowded with soldiers bearing arms, and across the drawbridge at the east gate, a unit marches off to action against the Turks, under the protection of the artillery. Along the network of roads outside the town are sentries, both mounted and on foot. Over the river only one drawbridge is down, the one near the water mill.

In contrast, the scene outside the town is bucolic: cattle graze, with shepherds in their midst. This is not surprising since in more than sixty years of war the townsfolk had learned to maintain their livelihood in harsh conditions. In times of danger they

drove the herds into the strongly fenced folds in front of the fortress. To complete the realistic picture of this sad period, Hoefnagel drew three peculiar trees bearing the heads of slain Turks—perhaps as a warning. The legend in the simple cartouche at the top right intensifies the stark reality: two wooden buildings in the town square are prisons for Turkish prisoners of war, held there until exchanged for Hungarians or ransomed by the Turks.

In spite of the grimness of the situation, Hoefnagel has, as usual, introduced figures into the drawing, which add to its documentary importance. In the right foreground a group of Hungarian nobles meet, and a lady shakes hands with a gentleman. Could this be the governor of fortified Owar, Count Pálffy, greeting his wife, the daughter of Mark Fugger of Augsburg? Certainly Hoefnagel has included the Pálffy castle on the west side of the square. And once again there is evidence of the artist's acute observation: the Turkish influence is revealed in the clothing of the nobles and their servants, and even in the harness and saddle of the horse.

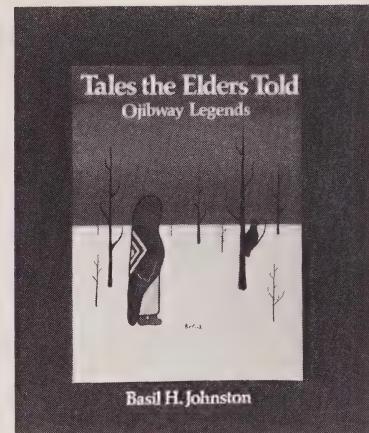
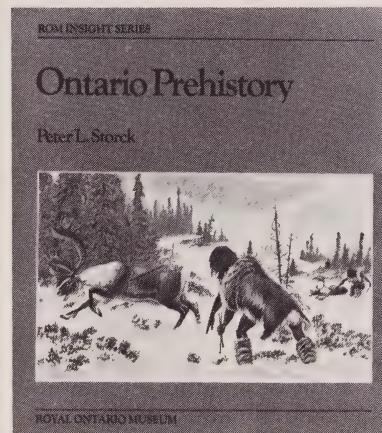
Although none of the original drawings for the ROM prints is as famous as Hoefnagel's *View of Seville*, executed in 1570 and 1573 and now in the Bibliothèque Royale in Brussels, the collection provides one source for study of an important artist. Ingvar Bergström, in an article on Hoefnagel in the May 1963 issue of *L'Oeil*, called him the last of the great Flemish miniaturists. It is perhaps worthwhile to comment that he was also one of the first Flemish artists to add significantly to the scientific image of his world.



Ladislav Cselenyi, a former Director of the Slovak National Museum, was born in Slovakia in 1920. He studied at the Teachers' College and at the University of J. A. Komensky in Bratislava, earning degrees in music pedagogy and art history; he received an M.A. in art history from the University of Toronto. He has written five historical novels and has composed short forms of music. Mr. Cselenyi came to Canada in 1966, and early in 1968 he joined the staff of the ROM, where at present he is Associate Curator, European Department.

Photos: Bill Robertson, Photography Department, ROM.

Recent Publications



Canadian Georgian Furniture, ROM Insight Series, Donald Blake Webster, 32 pp., illustrated, \$2.95 paper

Styles, materials, makers, and the problems of identification are discussed in this very readable introduction to elegant formal furniture of the early 19th century. Comprehensive captions accompany the twenty-three pieces of furniture illustrated. The book provides a clear, concise insight into one of the finest early decorative arts forms produced in Canada.

Ontario Prehistory, ROM Insight Series, Peter L. Storck, 32 pp., illustrated, \$2.95 paper

This newly revised publication introduces Ontario prehistory from the arrival of the first Palaeo-Indian peoples about 10 000 B.C. to the time of European contact in 1535. It is generously illustrated with photographs of artifacts from the ROM's collections and of several dioramas showing scenes of prehistoric life that were on display in the former Ontario Prehistory Gallery. A look at some archaeological techniques and a list of suggested reading are included.

Tales the Elders Told: Ojibway Legends, ROM, Basil H. Johnston, 64 pp., 6 colour and 28 black and white illustrations, \$8.95 cloth

This enchanting book combines nine delightful traditional tales translated from the Ojibway into English with superb paintings and drawings done by the contemporary Cree artist Shirley Cheechoo. The introduction explains the importance of storytelling in the lives of Native peoples. Stories such as *Why birds go south in winter* and *The first butterflies*, told

and retold through countless generations, are an integral part of the spiritual and cultural heritage of the Native peoples of Canada. Their storytellers were able to transmit the knowledge and understanding of past generations and to handle deep and serious themes in an amusing and entertaining way.

Corpus Vasorum Antiquorum, The British Academy and ROM, J. W. Hayes, folder of 42 loose plates plus paperbound text, 64 pp., illustrated, price to be announced

Excavation at Fengate, Peterborough, England: The Third Report, Northamptonshire Archaeological Society and ROM, ROM Archaeology Monograph 6, Francis Pryor, 272 pp., illustrated, \$25.00 paper

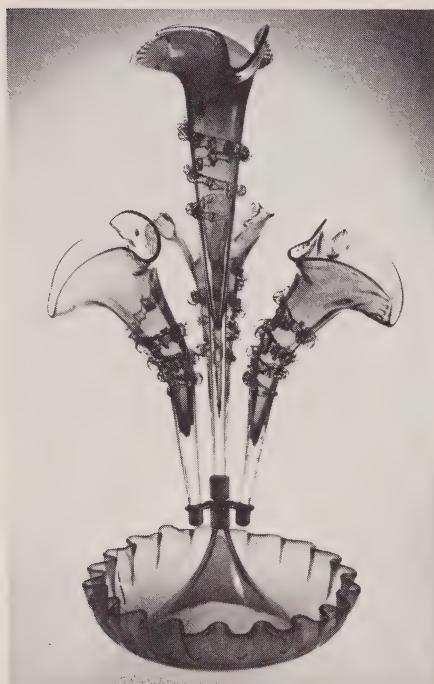
The Planarians (Turbellaria) of Temporary Waters in Eastern North America, ROM Life Sciences Contribution 127, Ian R. Ball, N. Gourbault, and Roman Kenk, 32 pp., illustrated, \$2.25 paper

The Trepostomatous Bryozoan Amplexopora solitaria Dyer 1925 Redefined as Heterotrypa solitaria (Dyer), ROM Life Sciences Occasional Paper No. 35, Madeleine A. Fritz, 8 pp., illustrated, \$0.80 paper

Variation in the Jaw Musculature of the Avian Family Vireonidae, ROM Life Sciences Contribution 128, Ronald Orenstein and Jon C. Barlow, 64 pp., illustrated, \$3.75 paper

Photos: Photography Department, ROM.

The Growing Collections



"A Gather of Glass", an exhibition held at the Royal Ontario Museum in the fall of 1977, has generated a number of gifts to the Museum. At the time this special exhibition was assembled, there were many gaps in the Museum collection. As time goes by, examples of more recent glass are being donated to fill the gaps, especially in the category of art glass. The Museum does not own many fine examples of art glass, and finer specimens of most types are to be found in private collections in Canada. Dr. and Mrs. Irving Miller of Toronto donated the rose-coloured and clear glass epergne (top).

Many collectors refer to such glass as cranberry glass, although it seems this name was not used when these pieces were made. This rosy pink glass was a popular line produced primarily by English and Bohemian factories during the period 1880 to 1915. Similar pieces are found in emerald green, blue, clear, and, less commonly, amber and amethyst glass. The pastel tones fit in well with the taste at the turn of the century. Examples of superior-grade glass with better finishing are more likely to be English. The epergne illustrated is probably from a small glassworks or "crib" in the Stourbridge area and dates from about 1895 to 1910.

A second epergne, the gift of Samuel and Victoria Sollens of Toronto, is quite likely an example of the lementescent glass patented in the Stourbridge area about 1890, and it would date from 1895 to 1900. This complex piece is in palest greenish-yellow glass shading to opal with blue at the edges. The applied and tooled trim and the crooks for the hanging baskets are clear glass. Such tooled decoration is sometimes referred to as rigaree work. These two epergnes, the first examples of this form in the Museum collection, offer a significant comparison between colourful popular taste and more subdued taste. Such a range of products is often found in English decorative arts.

An important example of art deco lighting from the René Lalique glass workshops is shown next. According to the donor, this large electric fixture originally hung in the newly opened Eaton's College Street store in the early 1930s. It is constructed of lead glass plates cast in moulds—eight around the side and domed plates on the top and bottom. The plates are held together on a heavy wire framework with large rings. One plate at the side serves as a trap door for changing the light bulb. The suspension chain and ceiling attachment of lightly gilded brass can be seen to the upper right in the picture.

The mistletoe motif is often found on small pieces by Lalique, but this large mistletoe ball is not recorded in any of the standard books on Lalique glass. Possibly this fixture was a unique or limited edition. It is highly appropriate that Mrs. Pauline Fedio, a talented Canadian sculptress, should bequeath a work of René Lalique, who also trained as a sculptor. The European Department of the ROM is very grateful for this important bequest which we hope to hang in our new galleries when they open in 1983. C.P.K.



The small serpent illustrated is a recent gift to the Far Eastern Department's collection of Chinese jade. Probably an impure nephrite, though as yet untested, it is a translucent light green with pitting and brown veining towards the head end, and with traces on the obverse of the rind or weathered surface of the pebble from which it was made. The form of the parent material is revealed by the convexity of the sculpture on the pitted side; it lies flat on the reverse or prettier side. The tolerance of the disfiguring skin reveals an early attitude towards jade—reluctant to sacrifice any fraction of the precious mineral, but not yet able to utilize the skin or clouding, in some cases, to advantage in the composition as was later so brilliantly done. The carving testifies to struggle, showing the roughness, false starts, and overshootings-of-the-mark characteristic of much archaic work. These revealing traits, together with the summary realism of conception and arch simplicity of feature, suggest an early date.

The serpent might best be compared with animal sculpture designated Han in James Watt's *Chinese Jade from Han to Ch'ing*, published by the Asia Society in 1980. The Han Dynasty (206 B.C.–A.D. 220) spanned a time of massive commitment of jade to burials in China, in the form, for example, of the famous jade burial suits of Han kings and princes. It was in Han times, moreover, that sculpture of real animals in true round began to appear. Jade workers and artists in other media began to depict known animals according to their observed natures, rather than the flat or angular conceptions typical of

Shang work (c. 1523–1028 B.C.), or the mythical abstractions in ornamentalizing style prevalent in the period of the Eastern Zhou (Chou), or from the sixth to the third century B.C.

Thus, our pale green serpent is a small but telling addition both to the fair-sized group of Han jades in the ROM and to the important collection here of Han art as a whole. As a single piece in the form of a snake it is also unique, to our knowledge, in the jade bestiary of ancient China. Dragons, birds, tigers, rabbits, fish, and insects abound, but the snake as a solitary creature is virtually absent. On the other hand, its emergence in the art of the Han period might have been predicted in terms of subject as well as of style, for it was then that the Divine Animals of the Four Directions appeared as a set group in Chinese art (the snake and tortoise combination signifying the North), along with the twelve animals of the roster of creature symbols used in China to indicate divisions of both time and space. It is to the group of twelve, in all likelihood, that this jade belonged, since the snake alone would not have been permitted to stand for the North.

A fortuitous combination of circumstances led to the discovery and acquisition of this piece. It was found, by chance, in a shop in our own neighbourhood. It was reasonably priced in this expensive area, and has been donated by our Number One friends and benefactors, the ROM's Bishop White Committee.

D.D.



Since the previous issue of *Rotunda*, the mineral collection at the ROM has increased by 400 specimens, 37 of which are species not previously registered with us. The specimen illustrated here is calcite from the Madawaska Mine (formerly Faraday Uranium Mine), in Faraday Township, Hastings County, Ontario. It was acquired by exchange with Cliff Vickery and was on display in the mineralogy gallery as part of an exhibit featuring Ontario specimens collected by the Walker Mineralogical Club. The scalenohedral calcite twin is 20 cm high, 14 cm wide, and 9 cm deep. In addition there is a smaller tabular twin, 14 cm × 6 cm × 3 cm, accompanied by much smaller groups of scalenohedral calcite crystals. All the crystals are studded with tiny cubes of pyrite and botryoidal clusters of marcasite. The opacity is a result of finely disseminated inclusions of iron sulphides, which give the specimen a shimmery lustre when viewed closely.

Two other specimens of note, not illustrated here, are: wicksite, a newly discovered phosphate mineral from the Big Fish River, Yukon Territory, named after Dr. F. J. Wicks of the Department of Mineralogy and Geology at the ROM; and a lovely specimen of realgar from Russia, displaying beautiful clear orange-red prismatic crystals 1 cm to 3 cm long.

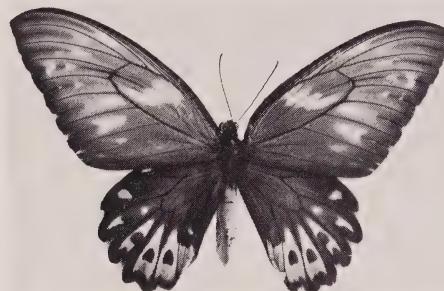
T.O.



The collections of the Department of Invertebrate Palaeontology continue to grow through donations and exchanges. Three suites of conodonts comprising almost 300 specimens were recently donated to the Type and Figured Specimen Collection. Conodonts are tiny toothlike phosphatic fossils of unknown origin, which occur in marine sedimentary rocks, usually limestones or shales, from the Cambrian (550 million years old) to the Triassic (190 million years old). The presence of different forms of conodonts in rocks of successive ages is very useful in dating and correlating rock strata. Dr. Glen Merrill, a research associate from Charleston, South Carolina, has donated the specimens that he used to illustrate two geological excursion guidebooks for field trips held in Illinois and Texas last fall. A composite photo taken with the scanning electron microscope (SEM) of the conodont *Idiognathoides sinuatus* from San Saba County, Texas, is shown, magnified 110 times. Dr. Svend Stouge has deposited with us the type specimens from his doctoral dissertation at Memorial University on the conodonts of the Middle Ordovician Table Head Formation (450 million years old) from Table Point, Newfoundland.

The department has also received several important collections of fossils from classic, relatively inaccessible, Canadian localities in exchange for representative collections from the Burgess Shale. A recent exchange with the University of Ottawa included about 200 superb Ordovician and Silurian fossils from Anticosti Island, Québec, and from McGill University we received three large Devonian (350-million-year-old) corals from Ellesmere Island in the Arctic.

J.W.



During November 1980 the Department of Entomology acquired approximately 2500 tropical butterfly specimens from John Stuart. The specimens are in flawless condition and those intended for display use have their wings spread to allow full appreciation of their beauty.

Among the many splendid specimens in the collection is a group of the most attractive, spectacular, sought-after, and valuable of all butterflies, the birdwings. There are twelve known species of *Ornithoptera* Boisduval, as the true birdwing butterfly is called, and they are all indigenous to the Papuan area, with one species occurring in tropical Australia. Birdwings are dimorphic, which means that the sexes differ in size, shape, or markings. The female New Guinea Birdwing, *Ornithoptera priamus poseidon* Doubleday, illustrated here, is larger and more sombre in colouring, generally brown with light spots, than the male. In contrast, the male is smaller and has brilliant wing colours, which change in intensity with the direction of the light falling on them. This type of coloration, known as structural, is not produced by pigments; it occurs because the surface corrugations or other features of the scales break up the light.

The world's biggest butterflies belong to the genus *Ornithoptera*; the largest of all known butterflies is the female Queen Alexandra's Birdwing, *Ornithoptera alexandrae* Rothschild, with a wingspan of 25 cm to 28 cm.

The larvae of the birdwing feed on various toxic pipevine or creeper plants of the genus *Aristolochia* Linnaeus. As a result, both the larvae and the adults have the poison in their body fluids, and thereby gain protection from birds and other potential predators.

Most of the birdwings in the genus *Ornithoptera* are rare throughout most of their natural habitat and are protected by law. In fact, the Convention on International Trade in Endangered Species of Wild Fauna and Flora for 1980 lists all birdwing

butterflies as endangered. Their rarity is the result of several factors: indiscriminate collecting by wealthy dealers and collectors, the cutting down of forests and consequent destruction of the larval food plant, and the extreme inaccessibility of the regions in which some of them live. The number of female Raja Brooke's Birdwing, *Trogonoptera brookiana* Wallace, considered a rare birdwing, has been estimated at figures varying from one female for every thousand males to a more detailed observation suggesting one female for every twenty males. Another study revealed five or six females in five years.

Gynandromorphic birdwings (those having characteristics of both sexes) are even rarer and more sought after. One gynandromorphic specimen of *Ornithoptera victoriae rubianus* Rothschild, now in the British Museum, shows brilliant male colouring on wings that are predominantly female-patterned. Other gynandromorphic variations may have, for example, female wings on the left side, and smaller male wings on the right side. A number of gynandromorphic birdwing specimens once purchased by certain wealthy collectors from a well-known dealer were later found to be faked; the appropriate part of a living female abdomen had been joined to the cut part of a living male abdomen. The specimen then lived long enough for the tissues to knit!

Although the Stuart collection was kept on shelves just off the floor of a rented basement studio, it shows no sign of dermestid damage. The dermestids are a family of beetles some of whose larvae feed on dried insect and other zoological specimens because of their high protein content. Mr. Stuart had applied a drop of spot remover (perchlorethylene) to the thorax and abdomen of each butterfly, which evidently deterred any dermestids from egg laying or feeding.

B.D.M.

Photos: Photography Department, ROM except for p. 22 (bottom) P. H. von Bitter.

Preserving the Past

An Indian Embroidered Coverlet

John E. Vollmer
and Izabella Krasuski

AS CURATORS we all strive to develop and improve the collections we are charged to maintain. Although most of us develop a kind of mental "I wish we had" list, few of us have either the fiscal resources for, or access to, the material we seek. Despite our considerable efforts, acquisitions are often serendipitous; the purchase of a major Indian chain-stitch embroidery by the Textile Department is a case in point.

In the summer of 1978 a London dealer came to see the Chinese textile collection, for which the ROM is justly famous. During our meeting she showed us photographs of several objects that were for sale, among them



Above left: Before conservation, a detail of the ROM's embroidered coverlet shows the dirty fabric, tears, holes, and replacement embroidery in the form of a clumsy leaf.

Above right: The same detail after washing, removing the replacement embroidery, and mounting on a support fabric.

Opposite page: Full view of the 17th-century coverlet after conservation by ROM staff.



an embroidery from Western India made for the European market. Incredulously I stared at a transparency of one of the most famed examples of 17th-century Indian export art—a fragmentary coverlet that documents a unique aspect of the development of the textile trade between India and England. Twenty-five years earlier the ROM had missed out on a chance to acquire such a piece. Apart from five examples in public collections no others were known to exist; but here, like a dream come true, was a second chance for the ROM to acquire one.

The pattern with its tangled exotic foliage and inhabited rockeries is known from a set of Indian embroidered bed hangings, as well as from a set of painted and dyed cotton chintz hangings, once in the possession of the Ashburnham family in Sussex. John Irwin, formerly keeper of the Indian section of the Victoria and Albert Museum in London, first called attention to the existence of the Ashburnham hangings in 1949, and made a convincing argument for a late 17th-century date, based on the presence of a Gujarati export stamp in the corner of one piece. In 1952 the contents of Ashburnham House were sold at auction and dispersed among five museums—three American, one English, and one Indian.

Both the embroidered and the chintz sets were partially reassembled by the ROM's then-curator Katharine Brett for the 1970 exhibition *The Origins of Chintz*. At a gallery seminar I attended before joining the staff of the Textile Department in 1970, I

learned about the importance of these particular textiles to the development of the Indian-style ornament of the 18th century. Mrs. Brett's revelation of how the ROM had missed out at the sale of these incredibly beautiful fabrics made such a lasting impression that eight years later, I was happy to be able to acquire the fragmentary coverlet to add to our collection of Asian export fabrics.

During the 16th century various Western European nations sent trade companies eastward around the Cape of Good Hope to open the markets of Asia to direct commerce with Europe. Originally spices were the major commodity, but in the 17th century trade diversified to include such former curios as fabrics, porcelain, and lacquered furniture. Because of the expense and risk involved in this global trade, Europeans were eager to ensure the saleability of Asian goods in a mass market. To this end, special instructions and even patterns to be copied were sent to the Indian workshops and factories producing goods for export. In 1643 the London office of the East India Company wrote to the head of the India export office, expressing disappointment in the chintz prices fetched at auction:

[Chintz] serves more to content and pleasure our friends than for any profit that ariseseth in sales; . . . 60 or 100 quilts will be as many as one year will want. Those which hereafter you shall send we desire may be with more white ground, and the flowers and branch to be in colours in the middle



of the quilt as the painter pleases, whereas now the most part of your quilts come with sad red grounds which are not equally sorted to please buyers.

The Ashburnham design was probably derived from a printed design for embroideries published in England. A fragment of a wool-embroidered linen curtain in the Elizabeth Day McCormick Collection, now in the Museum of Fine Arts, Boston, confirms the presence of the same design in England. The cross-hatching on the hand-painted chintz curtains is similar to that in Western engravings and supports a Western source for the design. Research by John Irwin and Katharine Brett demonstrated that this exotic combination of motifs evolved in the West from diverse sources. Elements like the scrolling branches with curly leaves were adopted from contemporary Flemish tapestry-woven hangings known as *verdu*. The birds and flowers, as well as the rocky mounds, are Chinese in origin. The animals inhabiting the mounds are probably Persian, yet the shepherds guarding them can only be European. This hybrid style in the Oriental manner both evoked the Western expectations for Asian goods and promoted the fashion for chinoiserie.

Although it is impossible to trace the ROM fragment directly to the sale of the Ashburnham furnishings, the piece is obviously closely related to the embroidered Ashburnham coverlet now in the Cooper-Hewitt Museum in New York. Like the Cooper-Hewitt piece, it features a central ogee-

shaped medallion with a pair of phoenixes; quarter-medallions with a single phoenix fill each corner of the field. Flowering branches with birds and bugs rise from inhabited rockeries across each end of both coverlets. Originally the ROM piece would have had a wide floral scroll border flanked by narrow guard stripes. This can be determined by the position of the vertical seams that once joined three complete widths of fabric to form the ground for the coverlet. These seams match those on the Cooper-Hewitt embroidery which has borders on all sides.

A detailed examination of the 177 cm × 250 cm coverlet shows that the ground fabric of the piece is off-white cotton tabby. The silk embroidery is done in numerous shades of indigo, two shades of pink, two shades of yellow, and purple. Approximately forty per cent of the coverlet is decorated with these embroideries. Although the pattern repeats along the horizontal axis of symmetry, no motif in one half is an exact copy of the motif in the other half, either in colour or in pattern. The central area of the textile is embroidered with large-leaved plants, huge flowers, birds, and butterflies. Both ends of the coverlet are filled with a wavy line which marks hills, caves, and slopes. Embroidered animals and human figures, shown in profile, peer out from behind the herbs and flowers growing on these hills. Curiously enough, the two humans and the two rabbits in the centre are shown frontally.

Colour plays an important role in the composition of the coverlet. The strong pink and indigo col-



Left: Indian chain-stitch silk-embroidered cotton curtain, late 17th century. Formerly in the possession of the Ashburnham family, Ashburnham House, Sussex, it is now in the Victoria and Albert Museum, London.

Opposite page: Fragment of an English wool-embroidered linen curtain, late 17th century, part of the Elizabeth Day McCormick Collection, Museum of Fine Arts, Boston.

Below: Detail of ROM coverlet before conservation shows tears and holes glued from underneath with adhesive tape.

Opposite page: After conservation, with tape removed.



ours dominate its central part. The yellow colour, which is much lighter than the colours in the centre, prevails at both ends where animals and humans appear. The lacy indigo sprigs in the medallions emphasize the pink and yellow silhouettes of the birds with their large ornamental tails. The large motifs in the central part are accentuated by the use of one colour in two shades; the small and medium-sized motifs have three colours.

When the ROM piece was acquired, it was in sorry shape. The dirty and creased coverlet had been badly handled over the years. The cotton fabric was weakened by holes and tears. The silk embroidery had disintegrated in many areas and the replacement embroideries done over the years were aesthetically unacceptable. In addition, thirty-two pieces of adhesive tape of different sizes had been stuck to the underside of the textile in weakened areas and had seriously damaged the fabric.

One might well ask why the ROM consented to purchase such a piece for its collections when neither the price nor the condition was a bargain. Foremost was the fact that this embroidery added strength to an already important collection of Asian export fabrics at the ROM. Moreover the ROM was among the very few institutions able to undertake the delicate salvage operation needed to save the

coverlet from total disintegration. Izabella Krasuski, the ROM's highly qualified textile conservator, rose to the challenge with distinction. Her report on the painstaking conservation treatment of the coverlet follows.

* * *

We could tell how dirty the coverlet was by comparing the greyish tone of the ground fabric with the original off-white colour still visible on its hemmed edge. There were many stains of different kinds all over the coverlet. Watermarks in the form of huge stains with a distinct, irregular outline marred both bottom corner medallions, but the right corner was much worse. Twelve large brown stains and about sixty smaller ones, which were scattered all over the textile, looked as if they could have come from the tape that had been stuck to its underside. The most visible stains were four streaks about fifty centimetres long in the upper part of the coverlet. Streaks also marred the central medallion and the bottom part of the coverlet.

The cotton fabric was extremely weakened. The fibres had lost their strength partly through wear and partly through repeated washings, which had caused the silk embroidery thread to shrink more than the cotton fabric. As a result, the ground fabric



was creased and badly puckered all around the embroidered areas; the larger the embroidered motif, the more creases and puckers there were.

The silk embroidery had fared no better. In the areas most likely exposed to touching, many of these coloured threads had simply disappeared. The worst areas were the two bottom corner medallions and the space between them, where almost all the single chain-stitch had disintegrated. The yellow outlines of the leaves, the navy outline in the wing, the tail, and the pink claws of the bird, the stitching delineating hills and slopes between corner medallions, the edges of the textile, and the central medallion—all these areas had lost so much of the original embroidery that it was difficult to decipher the design.

Some sixty replacement embroideries had been added to the coverlet, all of them doing aesthetic damage to the piece. In some cases, a torn and weakened area had been patched from underneath and missing embroidery had been replaced by new embroidery, which went through the double layer of the original fabric and the patch. In other cases, the torn area had been cut out and patched. In order to disguise the patch, the edges had been embroidered even though this was not part of the original design. The worst kind of repair, done to conceal

minute tears in the ground fabric, involved the embroidering of a completely new design, often disproportionately large compared to the damaged area.

The fabric that had been used for patching was identical to the original cotton tabby, but the patches had been inserted underneath, with no regard for the direction of the warp and the weft. The silk thread used in the replacement embroideries was slightly heavier, and the stitch slightly larger, than the original. In addition, the colours of the replacement embroideries differed from the original ones; the replacement red was warmer and darker than the original, and the replacement pink was warmer and lighter. The original indigo has a wide range of shades from a pale greenish to a dark blue colour, but the replacement thread was one shade only—dark navy blue. Two new and alien replacement colours not related to the other colours in the original design—warm green and dark beige—had been added.

Furthermore, the design of the replacement embroideries was distorted and clumsy. The motifs had lost their elegance and fragility, and had become awkward. Even those motifs that were only partly replaced looked aesthetically unattractive. Motifs had been embroidered where they had never

existed before, with inappropriate results: for example, a tree branch grew from the wing of a bird, a plant sat on top of a deer's horn, and two big leaves grew from the ground. Because these replacement embroideries greatly spoiled the artistry of the coverlet, we decided to remove them even though this would change its general appearance considerably.

Not all the previous repairs were so detrimental to the coverlet. Some thirty of them done to the background, though visible, managed to consolidate the tears well, and were aesthetically acceptable. For these repairs, narrow strips of cotton fabric had been placed underneath the coverlet and stitched with quite heavy cotton thread in a minute running stitch.

The first step in our conservation treatment was the removal of the adhesive tape. The glue had adhered so firmly to the fabric that when the tape was removed, half the sticky residue remained on the textile, leaving a highly visible, very sticky, white-coloured stain. Removing this residue with tetrahydrofuran was a difficult task since the fabric underneath, already weakened, had deteriorated further on account of the glue. We attempted first to dissolve the sticky substance, and then to get rid of it. The white stains disappeared eventually, but the fabric remained stiff in the affected areas and more

cracks appeared. Unfortunately, the glue had so weakened the silk embroidery threads that some of them stuck stubbornly to the tape and came away with it.

The second step in our conservation, the removal of the patches, mendings, and replacement embroideries, took a lot of time and patience. The patches were numerous and the stitches so minute that all the threads had to be cut under a magnifying glass. When the big patch underneath the centre medallion was removed, we discovered sixteen smaller patches, two of them glued on.

The next step was to clean the textile, both front and back, with a brush. Dust was removed from the inside of the hemmed edges of the coverlet. The edges were then sprayed with deionized water in order to straighten the hems and prepare the textile for washing.

Before the textile was immersed in water, it was placed on a nylon tissue strong enough to support it in the bath. A nylon screen, which permitted an easy flow of water, was put on top of the textile. To prevent any shifting, the tissue and the screen were basted together along the outlines of the holes and tears of the coverlet. All three layers were basted together at the outer edges of the textile. Then the textile was put into the water and soaked for ten min-

Detail of a painted and dyed cotton curtain from the western coast of India, late 17th century. Formerly in the possession of the Ashburnham family at Ashburnham House, Sussex, it is now in the Cooper-Hewitt Museum, New York.



utes. Afterwards, it was put into a bath of two per cent Orvus solution, where it was left for another ten minutes, and constantly agitated and observed. It was then rinsed many times in deionized water and transferred to a soft board covered with plastic. The basting stitches and the nylon screening were removed, and the nylon tissue on which the textile was laid was pinned to the soft board along the edges.

The straightening of the textile was done three times, each time starting from the centre and working towards the edges. Only after the third straightening did the silk embroidery relax and most of the creases disappear. To keep its shape, we pinned the textile to the soft board with brass pins inserted perpendicularly, and dried it with a hair drier. The pins were removed before the textile was completely dry.

The next step was to buy a cotton fabric matching the background colour of the coverlet. This fabric was washed in hot water to get rid of the sizing, and then it was dried and ironed. The cotton fabric was slipped under the coverlet which still lay on its nylon tissue; the tissue was then rolled away from under the coverlet. Rows of tacking stitches were sewn over the length and width of the textile. The outlines of the holes, tears, and edges were sewn to

John E. Vollmer, Associate Curator in Charge of the Textile Department, joined the Museum staff in 1968 as a secretary to the Far Eastern Department, where he worked with the Japanese collections. In 1970 he transferred to the Textile Department to work with the Chinese costumes and textiles that comprise one of the world's major public holdings. His research in oriental textiles ranges from the study of ancient Chinese weaving technology as preserved on the patinas of bronze objects to East-West trade relations during the 16th, 17th, and 18th centuries. He has organized several Chinese costume exhibitions, including *In the Presence of the Dragon Throne* shown here in 1977 and in New York at the Asia House Gallery in 1980. He was also invited to be guest curator at an exhibition of Chinese textiles and costumes at the Edmonton Art Gallery in November 1980.

Izabella Krasuski graduated from the Academy of Fine Arts, Cracow, Poland with an M.A. Her work in textile conservation began in the Royal Castle in Cracow on the famous collection of 16th-century Flemish tapestries. She was also involved in the conservation of many other textiles at the National Museum in Warsaw and at the National Museum in Copenhagen. After receiving her B.A. in art history from the University of Toronto, she joined the ROM Conservation Department in 1974. One of her interesting experiences was a visit to Peru in connection with the exhibition *Gold for the Gods*.

the cotton support fabric with a straight or couched stitch. Since the background fabric was extremely fine, the finest needle (2.5 cm long) and silk thread split into filaments were used. This completed our conservation treatment of the coverlet.

Even though the brownish stains and some of the discoloration did not disappear, the general look of the coverlet improved immensely. The background fabric and embroidery regained their sheen. The removing of the replacement embroideries eliminated the distortion in design and colour. The washing heightened the beauty of the indigo colour since it revealed at least six or seven shades ranging from a light green to a dark navy blue. Holes and missing areas became almost invisible because the colour of the support fabric matches the colour of the coverlet perfectly.

* * *

The conserved coverlet will play a prominent role in exhibitions and gallery displays evolved around Asian trade and chinoiserie. It has already had the distinction of serving as the focus for an undergraduate seminar taught by ROM staff in the Fine Arts Department at the University of Toronto. What is more, our textile conservator's efforts testify to the fact that the ROM is as concerned with preserving the arts as it is with collecting them.



Photos: p. 30 courtesy of Cooper-Hewitt Museum, The Smithsonian Institution's National Museum of Design; pp. 24(2), 28, 29 Izabella Krasuski; p. 26 courtesy Museum of Fine Arts, Boston; p. 31(2) Photography Department, ROM; p. 25 Bill Robertson, Photography Department, ROM; p. 27 courtesy Victoria and Albert Museum, London.

Figure 1: **Wang**—a ruler, royal, a prince or king.

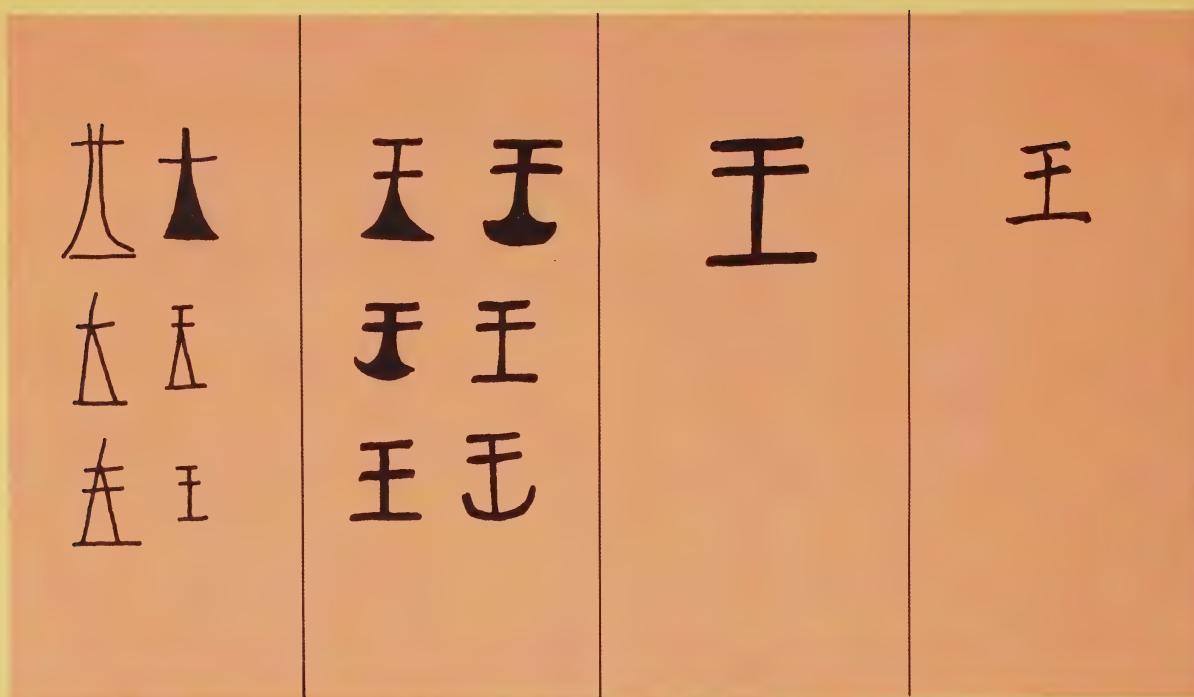
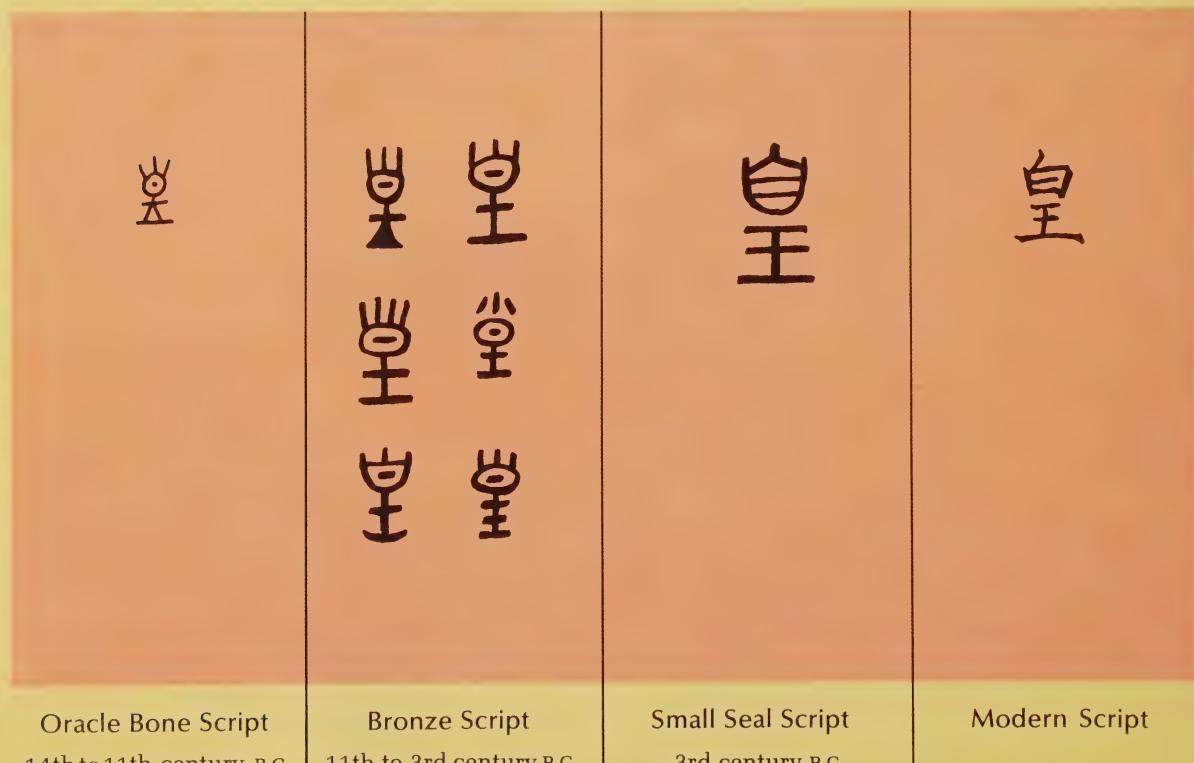


Figure 2: **Huang**—a ceremonial cap, ornamented with a featherlike pattern, august, exalted, supreme, beautiful, the ruler, imperial.



Oracle Bone Script

14th to 11th century B.C.

Bronze Script

11th to 3rd century B.C.

Small Seal Script

3rd century B.C.

Modern Script

The Tall Cap

Symbol of Authority in Ancient China

James C-H Hsu

AS A SOCIETY DEVELOPS AND ADVANCES, its inner structures, its concepts, and its customs undergo corresponding changes. We know from recent studies that during the three historical dynasties of Hsia (c. 20th to 16th century B.C.), Shang (c. 16th to 11th century B.C.), and Chou (11th to 3rd century B.C.), Chinese society advanced to the stage of statehood. Establishing the authority of a wang—a leader or a king—was a very important step towards this statehood. The concept of authority is abstract, but some way had to be found to express the idea in written form. In Chinese script an abstract concept is expressed by a character of similar pronunciation though unrelated meaning, or by a character representing an object or an activity related to the abstract concept. What kind of object was selected to represent the newly conceived status of the highest political figure and why was it chosen?

In the Shang oracle bones, the earliest known Chinese written documents, we find the first reference to the wang, the person who held the highest political position in the state. The development of the character wang is shown in Figure 1. Since its earliest known form is so sketchy and uninformative, it is very difficult to imagine how it was first created. The way to examine its origin is to study other characters with related meanings and similar forms.

The character huang (Figure 2) was first used to mean august, supreme, beautiful, a feathered cap and was later extended to designate imperial, the ruler, the sovereign. Thus, we can see that the meanings of wang and huang are related, and also that the character wang is incorporated into the structure of the character huang.

Different scholars have proposed different meanings for wang: a flame, the male organ, an axe, a sitting king, or a crown. Huang is thought to indicate either a shining sun in the sky, a lamp with a flame, a king wearing a crown, or simply a crown. For various reasons, the crown seems the most likely interpretation for both graphs.

If we compare the graph huang with bian (Figure 3), meaning a conical or military cap, the meaning of huang will be clarified. The graph bian has three styles: the first shows a person wearing a hat with decorative additions on top; the second and the third show two hands holding up a gable- or arch-shaped hat with a tube on the top. From comparison we can see that the main body of the



Figure 6 above: A drawing made from a rubbing of a Han stone tomb relief depicts the sage King Yü with a triangular cap on his head.

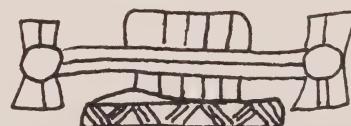


Figure 7: One of the three types of hats worn only by the mythical Eastern King and the Western Queen.

two graphs wang and huang has the same triangular shape as the raised or arched cap topped with elements of decoration, shown in the graph bian.

The original meaning of the graph wang is also related to the graph ling (Figure 4) meaning to command. Ling shows a person kneeling—the proper way of sitting in ancient times—with a triangular or A-shaped object on the head. Ling shows a person kneeling—the proper way of sitting in ancient times—with a triangular or A-shaped object on the head. That object is exactly the same type of hat as the military cap shown in Figure 3. (Incidentally, the ace in a poker game is the strongest card and is nicknamed “the cap” by present-day Chinese.) The A-shape used to represent a hat appears again in the graph chou (Figure 5) meaning a helmet. This graph shows a helmet with a decorated top above a head, which is represented by an eye. If the lines representing the top of the helmet’s crown are extended upward, an A-shape is formed. It is clear that the A-shape is the crown and that a person wearing a high triangular cap is a commander. The graph wang most likely represents that same type of official cap.

A Han Dynasty (206 B.C. to A.D. 220) stone tomb relief (Figure 6) depicts the sage King Yü of the Hsia Dynasty with a triangular cap on his head. Two mythical figures, the Eastern King and the Western Queen, are also seen wearing hats of triangular shape in Han stone reliefs. Their hats are of three types and are never found on other figures. The first

type is similar to the graph huang; the second and the third types are narrow on top, with basically a triangular shape. The third type (Figure 7) has the same form as the graph wang, if the jade decorations on the ends of the horizontal bar are omitted. This may not be pure coincidence, but may rather be based on historical facts and customs known only by the Han people.

If we compare the decoration on a late Shang bone tablet (Figure 8) found at An-yang with the graph huang, we can more easily understand what type of hat that graph represents. The crown worn by the deity on the bone tablet is decorated with horns and peacock feathers. The shaft of the feather curves up and to one side across the top, with a peacock eye incorporating three barbs at the distal end. This is clearly the same as the decoration represented in the graph huang. It is possible that the graph wang indicates the same type of feathered hat. This is substantiated by the fact that huang was sometimes used in ancient texts to mean a ceremonial cap or a dancing instrument, both of which were decorated with multi-coloured feathers. One of the more frequent interpretations for this graph, that of august, beautiful, is most likely derived from these beautiful objects.

Why was a hat used in the past to indicate power? The crown may have developed from feathered head-dresses which were often favoured in ancient

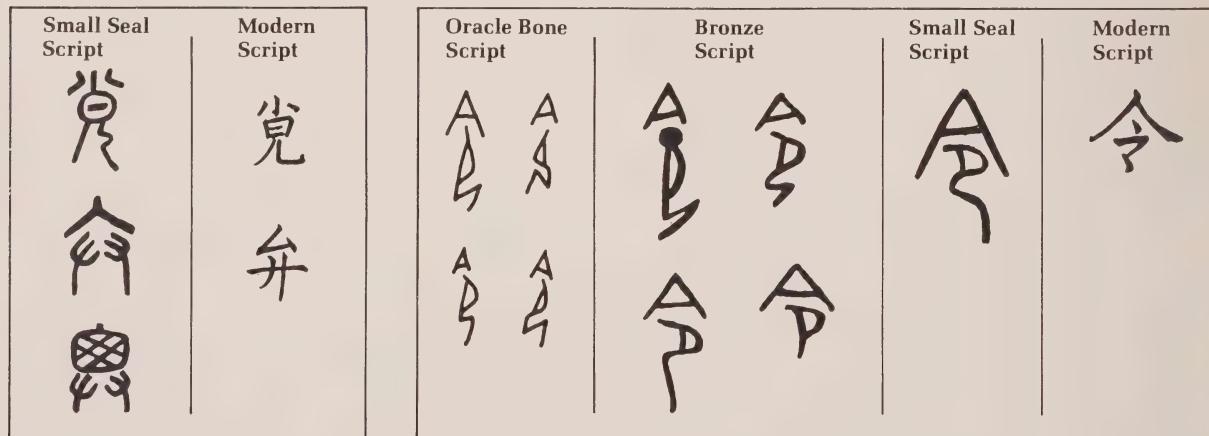
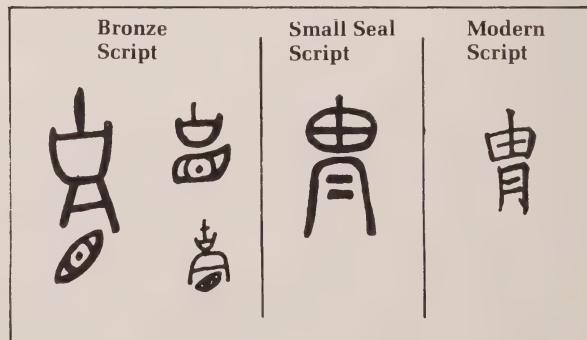


Figure 3 top left: **Bian**—a military cap, a conical cap.

Figure 4 top right: **Ling**—to command, to tell, an order.

Figure 5 right: **Chou**—a helmet.



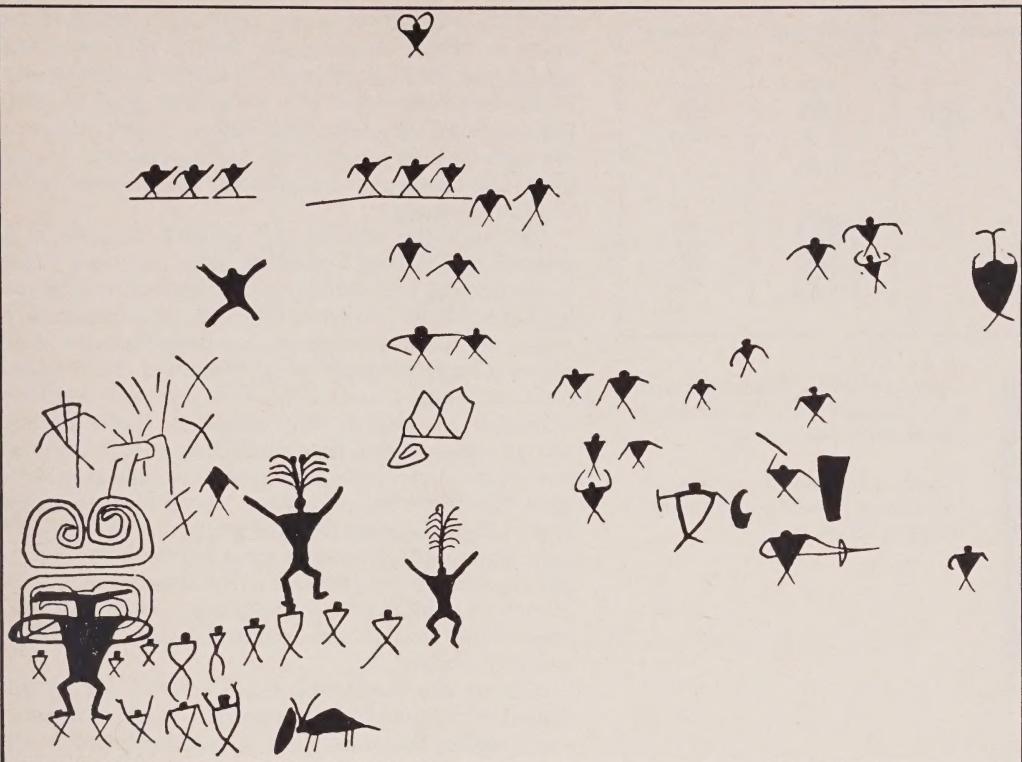


Figure 9:
Head-dresses in
the cliff
painting done
by an aboriginal
tribe in Yunnan
seem to be
symbols of
authority.



Figure 8 above: Decoration on a Shang bone tablet. Detail on right shows the feather curving up and to one side across the top, with a peacock eye incorporating three barbs at the distal end—clearly the same decoration as represented in huang.

times. The head-dress was an important status symbol among aboriginal tribes; for example, the feathered head-dress of the North American Indian chief was more impressive than those of other tribe members. The head-dresses shown in the cliff painting (Figure 9) done by an aboriginal tribe in Yunnan seem to be symbols of authority. Although we do not know exactly what the drawing expresses, it is clear that the big bodies represent people of higher status. The biggest body has a horizontal bar on its head and two groups of cloud patterns behind it. The second and third biggest creatures have feathered head-dresses on their heads; the fourth biggest one has only a small, simple head-dress on its head. The numerous other small figures are bare-headed.

Feathered head-dresses were worn not only because they were beautiful, but also because they stood out in a crowd. When it became necessary for a society to fight with others for natural resources, a commander naturally arose to direct the fighting more effectively. The Shang oracle bone inscriptions record occasions when an army of 3000, 5000, or even 10 000 men was called to fight the enemy. During such a period of intensified fighting, the visibility of the military leader was important. The best way for a leader to be easily spotted by his followers was for him to wear a tall head-dress, if a high platform to stand on were not available. Flags carried high to signal the strength of the commanding force were used for the same reason in ancient times. By

Oracle Bone Script	Bronze Script	Small Seal Script	Modern Script

Figure 10 above: **Mian**—a crown, a ceremonial cap, to avoid, to escape, to evade, to remit.

Figure 11 left: Figure wearing a two-horned helmet on a bronze pole-top image.



the same token, riding a high, swift, unstable chariot on a bumpy road, though an unpleasant and dangerous experience, was probably done partly so that the commander could be seen more easily by his followers.

The high head-dress may have been created for visibility and status, but the feature of height remained when the hat or crown developed from it. Evidence that the official cap developed from the military helmet is found in the character *mian* (Figure 10), which means a ceremonial cap and also to avoid, to escape, to evade, or to remit. The graph shows a person wearing a two-horned helmet; the same type of helmet can be seen on a bronze pole-top image in Figure 11. Since the helmet was worn to

avoid any harm from enemy attack, its graph came to mean to avoid. Because the helmet was necessary equipment for high officials in battle, it became part of the everyday dress of a king, and later of other high-ranking officials. The king's crown, showing his authority, is used in the same symbolic way as the sedan chair, which represents the emperor in the Chinese language.

Although the official cap is said to have been created by the first legendary emperor about 4 600 years ago, the fact remains to be verified by archaeological evidence. As far as we know from material remains, no hat or head-dress has been found to date, either among artifacts or in drawings, from before Hsia or Shang times. Since this was the period of emergent statehood, the enlarged scope of war among tribes at that time must have meant that certain people, who led others and were thus eligible to wear the high hat or crown, emerged as a ruling class. Others became the labouring class. We can deduce that a distinction existed between the ruling and the labouring classes in early Shang from the evidence of construction of huge city walls and temples which would have required a great deal of organized labour.

Because the head-dress was invented during this period of intense fighting and emergent statehood, and because the word king was represented in the written language by a pictograph of a cap, it seems likely that the high head-dress originated in military custom. It is possible that *wang*, the character representing the highest political person in China, was adapted from the characters representing the head-dresses worn by military commanders in ancient times.

Photos: p. 36 (centre) British Museum, London; p. 33 (top) drawing by Minao Hayashi; pp. 32, 33 (bottom), 34, 36 (top) James Hsu; p. 35 (bottom) Institute of History & Philology, Taipei, Taiwan, Republic of China; p. 35 (top) Wen-wu; p. 36 (bottom) Photography Department, ROM.



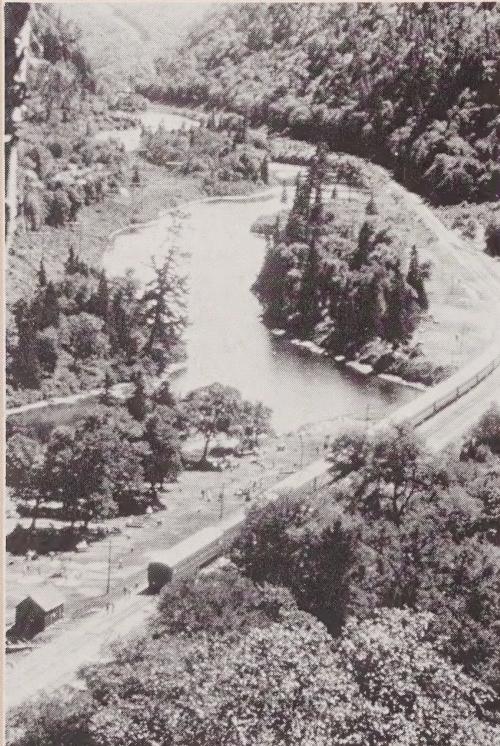
James C-H Hsu, Associate Curator in Charge of the Far Eastern Department, was born in Taiwan, China in 1941. He received an M.A. in Chinese Literature at the National Taiwan University before joining the Museum in 1968 for a special project on the Chinese oracle bones collection. He also received a Ph.D. from the Department of East Asian Studies at the University of Toronto in 1974 and now holds a cross-appointment as Associate Professor in that department for three graduate courses: "Chinese Philology", "The Written Word in Ancient China", and "The Thirteen Classics". His main interests are in Chinese ancient scripts and history; he has published seven books in these particular fields.

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Algoma Adventure

1-5 October 1981

A five-day trip through beautiful autumn countryside with Dr. W. Tovell. Visit the famous locks at Sault Ste Marie; tour Fort Michilimackinac; ride the Algoma Central Railway into the famous Agawa Canyon, where the river gorges, stretches of forest, and fiord-like ravines rival any scenery in the world.



Agawa Canyon. (Photo: Ontario Ministry of Industry and Tourism.)

Fall Fling to Washington, D.C.

5-8 November 1981

A showcase four-day visit! Tour some of the most famous galleries and private collections in the city; visit Dumbarton Oaks, the Phillips Collection, the Textile Museum, Anderson House, and Hillwood Mansion. Browse around Smithsonian Mall and enjoy a special "insiders" tour of the White House.

ROM Safari in Kenya

4-21 February 1982

Once again ROM travellers will be visiting the fabulous land of Kenya with Dr. Rufus Churcher, Professor of Zoology, University of Toronto. Straddling the equator at an altitude that promises warm days and cool nights, Kenya has much to fascinate her visitors: magnificent scenery, friendly people, and most of all abundant and spectacular wildlife. Photographers, naturalists, and adventurers—this trip guarantees you the thrill of a lifetime!

Looking Ahead

Mare Nostrum Cruise, April 1982
Iceland, July 1982

These tours are organized by the Members' Volunteer Committee of the Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario M5S 2C6.

For further information and brochures call the ROM Membership Office at 978-4291, or Butterfield and Robinson Travel at 864-1354.


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